The Builder.

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The late Richard Morris Hunt.

ALL our readers will hear with regret of the sudden death of Mr. R. M. Hunt, the eminent American architect, which took place, on July 31, at his summer residence at Newport, in Massachusetts. By this sad event a unique figure is removed from the ranks of American architects, and a career has been closed which is not likely to be paralleled in American architecture.

In his later years no architect in America was so universally looked up to as the head of his profession; his very many executed buildings, in all parts of the country, brought him wide fame outside the profession, but it was within it that he was especially revered, and no architect of his day enjoyed a broader popularity and respect among his fellow workers.

The extraordinary position Mr. Hunt held in American architecture can only be understood by realising the conditions under which he practised his art. His name heads the long list of American students who have studied at the École des Beaux-Arts in Paris, and he was thus the first to set that fashion of study which he lived to see dominate American architecture in a way no other style or system has dominated it. Mr. Hunt not only studied at the École, but he enjoyed the exceptional privilege of working on the drawings for the Pavillon de la Bibliothèque of the Louvre. The significance of these achievements was scarcely understood in the United States, when he returned there in 1855 at the age of twenty-seven, all but ready to assume the practice of architecture. Neither the advantages of French study, nor wherein consisted the honour of such intimate connexion with the greatest building of the French capital, were understood or appreciated in America at that time. But Mr. Hunt lived to see both his professional brethren, and the general public, so far as the latter affected an interest in architecture at all, awake to the meaning of these advantages, and his Parisian record now stands as the model that many an American draughtsman would imitate if he could.

The extraordinary interest in the French system of architectural training that followed hard after Mr. Hunt's return from Paris gave his achievements there a peculiar value in the eyes of the younger men growing up around him. They formed the foundation of the remarkable career of regard and admiration this architect enjoyed among his fellows. Fortunately Mr. Hunt lived up to his training in the truest sense. His social connexions were large and powerful, and many important commissions were confided to him. He had thus the amplest opportunities of giving actual expression to his training, and illustrating in his buildings the principles and methods of the great school where he had begun his architectural studies.

Before his practice had assumed large proportions, however, Mr. Hunt laid the second great stone in the foundation of his professional career, by opening an atelier for architectural study in New York, modelled on the system in vogue in Paris. In this lay the real strength of the regard of his fellow-workers. Many of the men who later on carried out much of the more important work in the United States were students in the Hunt atelier. Mr. Hunt thus acquired an extraordinary influence over the young men who, in a few years, became his competitors. Thus it happened that his professional relation with many of his contemporary architects was quite unlike that enjoyed by others. It was devoid of that professional rivalry and jealousy that so quickly destroys friendships and friendly associations, but was always that of an elder brother, kindly disposed towards the younger men, always ready with a word of encouragement. No other American architect obtained such a position, nor is it likely that the conditions will again arise that will permit a similar career.

Yet Mr. Hunt founded no school, he invented no style, he had no followers in a personal sense. His work was careful, accurate, scholarly, refined; often it was beautiful, and frequently it satisfied every requirement of pure architecture. In later years it approached, at times, perhaps too closely to the unfeeling and hard work of the ultra-French school. Yet at the very time these designs were issuing from his office he put forth other designs, which were replete with the keenest artistic feeling, and which, in many cases, will rank with the finest of his undertakings, and, indeed, among the finest products of American architecture.

The closeness with which Mr. Hunt adhered to the traditions of his training doubtless had much to do with the extraordinary reputation he enjoyed among the American architects of his day. Those who, like him, had studied in Paris, were quick to recognise the inherent merit of his work, which so freely confessed its origin, and yet which, in his hands, was admirably moulded to satisfy American conditions. There was a feeling abroad that with Hunt the traditions and the work of the School of Fine Arts were in perfectly safe hands. Thus he appealed to those trained as he had been by his conservatism, while the refined quality of his art brought him many friends and admirers otherwise not in sympathy with the style he cultivated.

In the course of his long professional career—he was sixty-seven when he died, a career which is called long in America—Mr. Hunt designed many important buildings. As is the case with every American architect, his work included a host of miscellaneous structures. In commercial architecture his best-known work is the Tribune Building in New York, the pioneer of large office buildings in America, now become dwarfed and insignificant beside the gigantic structures that have grown up around it. His Lenox Library in New York, and the Fogg Art Museum of Harvard University at Cambridge in Massachusetts, may be grouped together as his most notable monumental structures. His Administration Building at the World's Columbian Exhibition at Chicago* was more pretentious than either of these, though but a temporary structure. His greatest successes, however, were unquestionably his dwelling-houses, of which he built a large number for very rich men, and thus enjoyed peculiar advantages in having large means and ample spaces at his disposal for the securing of architectural effect. Many of his houses in New York and at Newport are among the finest examples of domestic work yet done in the United States, and they will long remain as enduring monuments of his artistic abilities and keen æsthetic perception.

Mr. Hunt was almost the only American architect who was well known abroad. His early French associations were actively maintained down to the end of his life. His foreign honours were numerous, and of the highest rank, and his fellow-architects felt, and perhaps not unjustly, that in the awards made to him the whole American profession was being honoured. The award of the Royal Gold Medal by the Royal Institute of British Architects in 1893 crowned a career

* See our issue for August 8, 1891, for an illustration of this building.

of great usefulness, and was a fitting distinction conferred upon a man who stood without a peer in the affections of his brothers, and unrivalled in the estimation of the American public.

The period during which Mr. Hunt was the leading figure may be said to mark the second chapter in modern American architecture, the first chapter being that in which Richardson was the principal figure. Before the Richardson period American architecture had hardly developed as a living art; not that we mean, of course, to attribute its awakening to its new career wholly to Richardson, but he was the most prominent figure of the period, and certainly exercised an influence over the style of his contemporaries which was very remarkable; and perhaps there is no instance in modern architecture of a single man doing so much towards making a style of his own, and inducing others to accept it. But things move very fast in the United States, and already the Richardson style may be said to be dying or dead. It was an exceedingly picturesque style, though somewhat wanting in refinement, and it had an air of greater originality than perhaps was really to be credited to it, owing to its being founded (so far as it was founded on anything old) on a far-off ancient style, for it was certainly dependent upon Byzantine suggestions. The nearest parallel in this country to Richardson and his influence on his contemporaries is perhaps to be found in the history of Mr. Waterhouse's evolution of his own phase of modern Gothic, and the large following it met with. But this was a modification of a revival already commenced, and therefore had not the same appearance of originality as the Richardson style. That the latter could be pretty easily copied was evidently found out before very long, and this very fact has probably led to its running out of favour, to a great extent at least, almost as fast as it came in.

Richardson's work, however, was a distinct attempt to evolve a modern American style; Mr. Hunt's influence has lain in the other direction. He has aimed at introducing French modes of thought and design into American architecture, and with so much success that one sometimes feels that the object of American architects at the present moment is to be more French even than the French themselves. As far as regards the systematising of architectural study this influence has no doubt been for good. And in regard to its influence on American architectural design generally it may be said perhaps to be a safer path than that of Richardson. Nevertheless, those who look with interest to America as the possible field for the development of something new in architecture would naturally regard these ultra-French leanings, which took their rise mainly from Mr. Hunt's influence, as a somewhat doubtful blessing. With all admiration for the excellent work which Mr. Hunt did, both in regard to the production of refined buildings and the promotion of systematic study, they would rather see America with her own architectural ateliers and schools of architecture on her own lines, than see her occupied in transplanting the methods and tastes of the École des Beaux-Arts to her own shores.

ON COMMON COLOURS.

By A. P. Laurie, M.A., B.Sc., F.C.S., F.R.S.E.

WHILE so much attention has been devoted to the durability of the finer and more expensive pigments which are used by artists, very little has been done in the direction of inquiring into the common pigments which are used for decorative work and for ordinary house-painting, and yet it may often happen that work of real value has been done of a decorative character, or some important scheme of colour worked out under the direction of an architect, which is of permanent value, though, unfortunately, is not of permanent material; nor, to take the humbler department of house-painting, is it altogether to the credit or advantage of an architect that colours which have been put on walls under his direction, should fade in the course of a few months. Then there is the whole question of wall-papers and the selection of wall-paper which is not only beautiful in design, but is also sufficiently durable in colour. No doubt the highest degree of permanency is not required in this case, as a wall-paper gets dirty and has to be renewed; but there are limits even here to the fugitive character of the pigments that should be employed. For instance, I once heard a paper-hanger complain that the room that he was papering had no shutters, and that the blinds had not yet been put up. I asked him the reason why, and he explained to me that the house was being prepared for a young couple who had just gone off for their honeymoon, and would not be back for a fortnight, and by that time the colours would be all gone.

The fact of the matter is that the complexity of the problem has been enormously increased of late years by the introduction of pigments, which consist of some solid, heavy powder, such as chalk or barytes, dyed with aniline dyes. The aniline pigments are remarkable for beauty and brilliancy, but cannot be trusted in most cases, though some are sufficiently permanent for wall-papers. Unfortunately for those ignorant of chemistry, much ingenuity has been devoted by the makers of these pigments to the imitation of well-known colours, and with so much success that the colours themselves have been surpassed. I have no hesitation in saying that if an artist were shown a sample of real cobalt blue and a sample of imitation cobalt blue, made from an aniline dye, he would select the imitation as being the finest colour, though he would very soon bitterly regret his choice when he found that a dirty stain was left wherever the blue had been used.

These colours made from aniline are being largely used at the present time for paper-staining, and it is of great importance that they should be carefully classified according to durability, so that paperstainers and others should know what to expect when using them. It must not be supposed that the discovery of coal-tar products has led to nothing but more fugitive pigments. The preparation of alizaine artificially has been of the greatest benefit, giving to artists and decorators strong, rich lakes which are absolutely permanent and of great beauty. But to return to the architect who is anxious to perform successfully some piece of decorative work, he is at present entirely at the mercy of his painter, who is himself probably ignorant of the composition and properties of many of the colours that he uses, and, the light of science not having been directed upon his work, is the victim of many prejudices.

When a meeting was held, about two years ago, with a view to establishing technical teaching for house-painters and decorators, I wrote, at some length, to the President of the Conference, urging the importance of having instruction for painters on the nature and properties of pigments, and of the simple chemistry of their manufacture, but of so little importance is this considered by the trade, that my letter was not even acknowledged by the President of the Conference, and as far as I am aware, nothing has yet been done in this direction.

In order to illustrate the difficulties of this subject, and the opening there is for careful inquiry into the properties of the pigments sold for ordinary decorative work, I will take as an example the price-list of a well-known firm of colour-makers. On adding up the various names of pigments in their list I found it amounted to 147 different pigments, and on referring to the latest work on colours which has been published, and which is recognised as a satisfactory book on the subject, I could only trace 75 of these pigments, the other 72 being either pigments of different composition to those commonly known, or being old friends under a new name. Take the 75 known pigments, 25 of these were pigments well-known to be fugitive, so that we had left out of 147 pigments only 50 which were of known composition and durable. It is, of course, quite possible that many of the unknown 72 pigments were also permanent, but this does not affect my argument, that anybody working from this catalogue would be quite in the dark as to the properties of the substances he was using.

There would, of course, be very little difficulty in an analytical chemist identifying these unknown pigments and advising as to their durability, but the analytical chemist does not seem to be used for this purpose at present. Then, besides this, there is the importance of selecting pure oils and varnishes, and considering, as well, the conditions to which the painting is to be exposed. For instance, nobody would dream, who knew his work, of using for decorative work inside London the same pigments, oils, or varnishes that might be safely used in a building out in the country. There is a further matter to which sufficient attention is not paid. Pigments may be required to be laid on in a medium of oil, or to be laid on as distemper colours; or in other cases they are used merely mixed with lime for fresco, in which case a special palette must be selected, the pigments which will stand under one condition being fugitive under another, and there can be no doubt that a great deal of wall decoration which has perished in modern times has done so simply because unsuitable pigments have been used. It is a common remark when looking at the work of past ages in colour to say that the old masters must have had permanent pigments, while nowadays decorators and artists are the victims of fugitive paints, and that if they only had the paints of the old masters they would be all right. Now this view is completely false. The painter of to-day has a larger number of permanent pigments at his disposal than the painters of the fifteenth century, and the reason why his work does not stand as well is not so much the fault of the chemist or the colourmaker as it is his own fault; he does not know his own business, and consequently he makes mistakes. For instance, Cennino Cennini, who writes early in the fifteenth century, mentions only five pigments, including black and white, which he considers can be safely used for fresco-painting; but this limited list could now be considerably added to, so that the fresco-painter of to-day has a larger palette of permanent pigments to work with, and he spoils his work simply because he will not keep within the proper limits.

I have already said that the conditions to which the pigments are to be exposed should be carefully considered in each case. It must be remembered that in the case of our large towns atmospheric conditions exist which were unknown in the past. The presence of sulphur compounds in the air is one of the most serious of these, and necessitates a careful avoidance of lead, except in the one form of lead sulphate, in internal decorative work, and yet although the house-painter and decorator can perfectly well avoid the use of these lead compounds, he will not do so. The boiled oil he uses contains lead, but he can obtain boiled oil free from lead; the varnish he uses contains lead, but he can, if he likes, obtain varnish free from lead; the dryers he uses are in many cases lead compounds, but he can obtain dryers which are just as good and contain no lead; and last of all, he will use an ordinary white lead which is bound to turn a dirty yellowish brown very quickly, although he can obtain patent white leads at the same price and of equal covering power, which resist the action of sulphur compounds in the air. All this is simply the outcome of ignorance, and is due to the fact that while chemists have been steadily improving pigments, oils, and var-

nishes, and have been solving these problems, the result of their labours is ignored by the trade. One would have imagined, for instance, that the fact that these patent white leads are practically non-poisonous would have caused them to have been at once adopted by a trade in which so many fall victims to lead poisoning; but it is not so, and it seems impossible to interest them in the question. Surely architects should look into this matter for themselves, and should insist upon the application of modern scientific knowledge to painting and decorative work. Every industry which has had the light of science turned upon it has enormously developed and improved, and, for example, the art of dyeing has been revolutionised by the work of the scientific chemist; but the other decorative arts remain obdurate, and the work perishes, not for want of knowledge, for the knowledge is waiting to be applied, but because those engaged in decorative work will not call upon the man of science to advise them or assist them in their labours.

A. P. L.

NOTES.

THE interpretation of the nine central metopes of the south side of the Parthenon has been usually given up as a hopeless task. These metopes interrupt suddenly the series depicting the battle of the Lapithæ and Centaurs, and it is just here, where interpretation is most difficult, that the originals have perished (*i.e.*, in the explosion of 1687). We have the drawings of Laborde, notoriously untrustworthy in details, and that is all. A careful study of these drawings has, however, led Dr. Pernice to the conclusion that the main subject, or rather subjects, can be clearly made out and this interpretation, given in full in the new number of the "Jahrbuch" of the German Archæological Institute (x., 2) deserves the careful attention of all archæologists. His theory is briefly this: the nine metopes relate the religious history of primitive Athens in three scenes—*i.e.*, the nurture of Erichthonios in the chest, his battle with Amphictyon, and his institution of the worship of Athene. A glance at Laborde's drawings (reproduced in the "Jahrbuch") will show that his theory affords at least a simple and straightforward explanation of the scenes represented. The new interpretation would probably have suggested itself long ago but for an inveterate habit of regarding metopes as isolated independent compositions. That this was in archaic art by no means always the case is seen clearly in the newly-discovered metopes of the Athenian Treasury at Delphi, where no less than five metopes are devoted to the single scene of the combat of Herakles with Geryoneus. The question naturally arises, why should these nine metopes be introduced, breaking the series of Centaur compositions? Dr. Pernice conjectures that they may have been prepared for the earlier Parthenon, and he further thinks that possibly they may have been intended to indicate the arrangement of the inner cella, the scene of the dedication of the early *xoanon*, symbolising, as it were, the presence of the later Parthenos within. This is, of course, merely a conjecture, but an interesting one.

TWO monuments of considerable interest in relation to the worship of Demeter have recently come to light during the excavations carried on by Mr. A. Skias at Eleusis. One is a quadrangular terra-cotta *pinax* or drawing-tablet, surmounted by a pediment, the whole measuring 30 cm. by 15 cm. On it is painted a composition in two rows, one above the other. To the right of each row is a seated goddess, approached in the upper row by four, in the lower by three, figures all represented in lively action. The procession in the lower row is headed by a youth with long hair, high boots, and holding two torches; in the lower row the leader is a woman heavily draped, wearing a diadem, and also holding two torches. The women figures in both processions wear curious objects, as yet unexplained, on their heads. A rough reproduction of these curious designs appears in the current number of the Ἀρτν. It is hoped that some light may be thrown by them on the Eleusinian ceremonies. The style is of the fourth century B.C., and the *pinax* bears the inscription Νίννιον τοῖν θεοῖν ἀνέθηκεν. The second Eleusinian monument is a beautiful red-figured vase, 22 cm. high, with a representation of Demeter, Kore, and Triptolemos. The inscription, Δημητρία, Δήμητρι ἀνέθηκεν, bears traces of having been gilt.

THE artistic treatment of placards is a subject to which a good deal of attention has recently been directed, especially in France, and to some extent in England, and it is interesting to note that Germany seems to be following suit in this respect, for we hear that in Berlin competitions have been opened for the designs of posters for the International Art Exhibition and the Berlin Industrial Exhibition, both of which will be opened next May. We have not seen the conditions under which these competitions are held or who the assessors are. We, however, understand that in both cases the premiums are comparatively substantial, *i.e.*, 50*l.*, 25*l.*, and a number of minor ones. The competition for the Industrial Exhibition has already been decided. There were no less than ninety-eight designs. At the same time we may notice the effort in Berlin to improve upon the stock pattern of lamp-posts, &c., for the streets. A competition has now been opened for a design for the standards necessary for the wires to the new electric tramlines. Three premiums of 50*l.* each were given, together with a number of smaller sums, and 132 designs were sent in. The results in both instances are satisfactory.

DR. R. DEANE SWEETING, in his report to the Local Government Board on an outbreak of enteric fever at New Delaval, in the Tynemouth Rural District of Northumberland, after commenting on the usual danger and nuisance of the privy midden in rural districts, draws attention to a new source of insanitary influences special to the district, and which we have not before seen mentioned. It seems that at New Delaval it is a habit of the colliers to throw on the ground around their dwellings the "duff" or screenings of the small coal that they are allowed by the colliery company. This "duff," mixed with midden and other refuse, including, sometimes, house slops, gives rise to a distinct nuisance, both directly by emanation from the foul matters apt to be contained in it, and indirectly by forming elevated ground from which moisture may gravitate into the foundations of the houses. This constitutes an especial danger to the houses of the rows built of absorbent stone, such as most of South-row and all Middle-row. The matter, we are glad to learn, has engaged the attention of the colliery authorities, who have been excavating this "made ground" between South-row and Middle-row, and levelling the ground generally between the rows. The incident is worth noting as showing what an all-round watchfulness is needed to avoid the creation of insanitary conditions in contiguity with dwelling-houses of the humbler class.

THE case of the Queen *v.* the Vestry of St. George, Hanover-square, which is reported in the current number of the "Law Reports," decides a curious point in regard to the drainage of London. It appears that three houses in Grosvenor-road drained by means of a single pipe directly into the Thames. The County Council, with a view to stop the pollution of the river, made an order on the Vestry to construct a new sewer of specified dimensions, and in accordance with a specified plan, to carry the drainage of these houses into a low-level sewer belonging to the County Council. The question was then raised whether the Council had any jurisdiction to make this order, and the Court decided that it had not. Under the Metropolis Management Act, 1855, Section 135, the Metropolitan Board of Works, and now the County Council, can make such sewers as may be necessary. "The intention of the Act, said the Court, was that if the Board thought a sewer was necessary, they should make it themselves, not that they should order the Vestry to make it for them." The one hundred and thirty-eighth section, under which the Council purported to act, was again intended merely to give that body a control over the construction and arrangement of new local sewers, and was not intended to empower the central body to order new sewerage to be constructed by the local authority. It is clearly undesirable that drainage should be allowed to contaminate the Thames, but the object would seem to be within the Rivers Pollution Act, 1876. At any rate, the means taken by the Council was the wrong one.

ANOTHER decision, to which the London County Council was also a party, was given shortly before the Courts rose for the Long Vacation. The question simply was whether a court-yard to a new set of flats, which yard was used for the exit and entrance of carriages, was a new street within the meaning of the London Building Act. In the opinion of the Magistrate who first heard the case, the yard was a street; in the opinion of the Divisional Court, it was not. The point is of some importance to those concerned with the erection of buildings in London, and this decision seems to set at rest any doubt which there may be on the subject.

THE destruction of electric fittings by a lightning discharge is a rare occurrence in this country. During the thunderstorm of last Saturday this happened at the Woodburne Hotel, Douglas, Isle of Man. In this hotel an arc-lamp was supported on a flagstaff fixed on a turret. The flagstaff was struck by lightning, and the discharge went through the electric fittings, being the path of least resistance to earth. The fittings were destroyed, the ceiling of the billiard-room was set on fire, and several persons experienced severe shocks, although the building, as a whole, received very little damage. This accident shows that it is advisable to have lightning arresters properly fixed whenever a building is distinctly higher than its surroundings, and has external lighting arrangements in the roof, whether they be gas or electricity. These protectors cost very little, and very rarely fail, the failures arising, as a rule, from faulty earth connexions, the ground wires being sometimes simply pushed into the earth. The points usually selected for a lightning discharge are trees, church steeples, tall chimneys, and the like—in fact, anything which is a conspicuous mark in the landscape. This is emphasised by the death, by lightning, of a labourer crossing the brow of a hill near Eastbourne during Saturday's storm, following, as it does, the recent death of a doctor in the north under similar circumstances. It is well known that lightning-conductors with faulty earth connexions are dangerous, but they are also sources of danger when they are placed near gas or water-piping or electric wires, as there is a tendency for the discharge to "side-flash" under these circumstances. In accidents from this cause which have occurred in America, porcelain switch-boxes have been broken in pieces and the screws burned; occasionally, too, the metal conductor is found broken into small pieces. As a general rule, however, it is next to impossible for a lightning discharge to enter a house by the electric mains unless it is invited to do so by an arc lamp-standard fixed on the roof.

THE Berlin annual Salon of 1895, though quite representative of German picture painting, scarcely claims attention outside Germany, owing to its unfortunate inferiority in comparison to the other art exhibitions of the Continent. With few exceptions the Berlin catalogue this year describes nondescript canvases of unsatisfactory composition and technique. There are more than two thousand paintings on the walls, and yet the only pictures that would call for the attention of an English connoisseur are by the few recognised artists such as Anton von Werner. Compared with former exhibitions, the Salon perhaps shows a greater tendency on the part of the German artist to be over-patriotic in his subjects, and we are afraid this doubtful movement is mainly due to the encouragement of the Emperor, who has always been a ready purchaser of patriotic subjects, no matter what the merits of the painting as a work of art; and his patronage generally means popularity for the author. Sculptors are better represented at Berlin than last year, and the halls devoted to their 250 pieces of statuary are certainly more interesting than the endless galleries of mediocre canvases. The same extravagant patriotism is, however, unfortunately again to be found in many of the monuments to the late Emperor and other memorials. As to the architectural exhibits at Berlin, they are simply a farce. Some excellent drawings of the new station at Cologne, designed by Professor E. Jacobsthal, are the only things of any importance in the Architectural Room.

THE London County Council have just opened to the public a new garden in Clerkenwell parish. The ground, being in two parcels, and about three-quarters of an acre in extent, is part of some land they took for making Rosebery-avenue, which here traverses what was Spa, or Pipe, Fields, south side. It lies along the eastern side of that thoroughfare, adjoining the old Spa Green, which is now included in the new recreation area. The Council voted 1,500*l.* for laying out the ground, which has been done under direction of Colonel Sexby, chief officer of their Parks Sub-Department; two years ago they voted 10,000*l.* for purchase of the plots, the money being provided from the amount assigned for buying an open space under the Post Office Sites Act, 1889 (Coldbath-fields Prison). The environment of Spa Green has been greatly changed by the extension of Rosebery-avenue across Rosoman-street and Garnault-place, and so south of New River Head through what was Myddelton-place to join St. John Street-road, formerly Islington-road. Thus have disappeared the "Sir Hugh Myddelton" tavern (1831) with Deacon's Music-hall, Eliza-place (along the south side of the footway from the New River Company's offices to Myddelton-place), and the upper ends of Rydon-crescent, Thomas-street, and Lloyd's-row.* A large tree opposite the south end of Green-terrace, built in 1827 and named after John Green, clerk to the New River Company, who married Sir Hugh Myddelton's granddaughter, Elizabeth, and died 1675, marks the original limit of the green, but that end of it was taken for roadway and for extending Gloucester-street to meet the new avenue. In Lloyd's-row, north side, at the corner of Spa-cottages, stands an old house, older than its neighbours, bearing in large letters "Islington Spa or New Tunbridge Wells." This spa, like its contemporary, Sadler's Wells, formed a highly popular resort during the last twenty years of the seventeenth century, reaching the summit of its fame *circa* 1733, when George II.'s daughters often went thither to drink the waters, their progress through Spa-fields, an open space until eighty years ago, being greeted with the discharge of cannon. The spa is in Clerkenwell; Lady Mary Wortley Montague, it is said, first directed attention to the properties of its spring, a light chalybeate, which still flowed within our memory. The extensive gardens were originally entered from No. 6, Eliza-place; in 1810 that entrance was replaced by one in Lloyd's-row, next to the old house mentioned above, and close to the spring.* Owing to their once open situation the precise limits of the gardens is not readily to be traced. Having compared some old maps with the Ordnance Survey, 1871, 5 ft. to a mile, we believe we correctly say that they were bounded by Eliza-place, Lloyd's-row, St. John Street-road, and the western arm of Thomas-street; at the north-western corner stood the "Sir Hugh Myddelton," successor to the "Myddelton's Head," built in 1614, and depicted in Hogarth's "Evening"; the middle one of the three plots lately planted by the Council is, in fact, on the site of the western portion of the old gardens, which were considerably reduced in area by the building of the present Spa-cottages, a *cul-de-sac* behind Lloyd's-row, in their midst in 1840. It is, perhaps, worth while to point out that as many writers treat Sadler's Wells and Islington Spa as one and the same, the identity of the latter, clearly a separate place, has been commonly overlooked. A view by Geo. Bickham, jun., is in the "Musical Entertainer," 1737.

* On the Baker estate, *conf.* Baker-street, Lloyd-square, Hardwicke-street, &c. Thomas J. Lloyd Baker, of Hardwicke-court, Gloucestershire, born 1777, was the son of the Rev. W. Lloyd Baker, by Mary, only daughter of the Rev. John Lloyd, rector of Ryton, co. Durham.

* W. J. Pinks's "Clerkenwell," edited by E. J. Wood, 1881.

THE annual business meeting of the delegates of the various German architectural and civil engineering societies will be held at Schwerin on the 31st inst. The agenda-paper includes a number of interesting subjects for discussion, besides the usual business transactions; and among the latter is a proposal for the revision of architects' scale of charges, as well as a curious suggestion that architects should agree on some policy to prevent their works from being appropriated by literary publications. There will also be a discussion on the position of municipal building officials on the use of the word "architect" as a title, and the training of architectural students. Of the technical subjects on the agenda-paper, the most important refers to fire-resisting construction, whilst in the business part we find a proposal to found an official journal for the amalgamated societies. As to the proposed union between architects to prevent the publication of their designs (for we presume that is what is meant), German architects would do well, before they commit themselves to any rash action on this head, to compare their native architectural journals with those of England and America, where the principle has been long adopted that publication of an architect's designs is not a disadvantage to him, and where drawings are freely lent for publication. As far as our experience goes, the only thing the average German architect usually considers when any proposal is made to publish his designs, is what he can get for them, rare exceptions to this rule only being found among the really prominent members of the profession. This, no doubt, partly accounts for the absence of any decently-illustrated architectural paper in Germany.

WE have been asked to give publicity to the terms of the following memorial in relation to the decision in the Durham County Buildings competition, which is to be formally presented to the County Council of Durham as soon as the signatures of all the competitors who are willing to sign it have been obtained:—

"4, Ludgate-circus, E.C., August, 1895.

TO THE CHAIRMAN AND MEMBERS OF THE DURHAM COUNTY COUNCIL.

GENTLEMEN,—We, the undersigned, with very great pleasure and considerable hard work, responded to your invitation to submit designs in open competition for the new council house and offices in Old Elvet, Durham, under conditions, which we humbly submit have certainly not been fulfilled in the spirit in which they commended themselves to us all. The result is that a gross injustice has been done to honourable and brilliant professional gentlemen, by their being set aside, without any valid reason, as if incompetent and unworthy, and local men, more or less unknown, substituted, who by your assessor's award had not earned the honour of being entrusted with so important a public work. We therefore humbly and respectfully pray you to remove this most unmerited slur and bitter disappointment, by entrusting Messrs. Cooksey & Cox with the work they fought for and so gallantly won, and thus not only earn the esteem of the competitors and profession generally, but we earnestly believe, act in the best interest of those you represent.

PHILIP TREE & IVOR PRICE.
Hon. Secs. for the Competitors.

The Hon. Secretaries will be glad to hear at once from competitors who wish to add their names. This is a movement which is very honourable to all concerned in it, since it is entirely an unselfish effort, on the part of competitors who have not been successful, to obtain justice for those who honestly gained the competition.

BRASS OF WILLIAM GREVEL AND WIFE, CHIPPING CAMDEN, GLOUCESTERSHIRE.

THE figure of William Grevel, "Flos mercatorum, Anglie," as described in the inscription, is in a long cloak buttoned on the shoulder. At the opening may be seen the tight-buttoned sleeves of an undergarment terminating at the wrists.

Round the waist is worn a belt, from which an anelace is suspended. The hair is close cropped, and a short peaked beard and moustache are seen.

The wife's figure is enveloped in a long dress buttoned the whole length, and at the wrists may be seen the short sleeves of an under-garment, similar to that on the other figure.

The nebule headdress is worn, the ends falling on the shoulders.

The canopies over the figures are of an ogee form, and in the centre compartment of each is seen the merchants' mark. The central shaft is mutilated. At the foot runs an elaborate basement upon which the principal figures are placed. Shields of arms are placed (one lost) on either side of the finials of the canopies.

A marginal inscription completes the composition. ANDREW OLIVER.

ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

IN giving our usual record of the proceedings of this annual and always interesting expedition of the Architectural Association, with an account of the places visited, we may observe in the first place that the greater number of the illustrations *en route*, which have been prepared to accompany the account, will be found in next week's issue of the *Builder*, where also the greater portion of the account, that of the last four days of the week, must appear. It had been intended to divide the lithographic illustrations between this issue and the following, but we thought it desirable to devote a portion of our lithograph illustrations this week to the publication of the first premiated design for the Durham County Council Buildings, the circumstances connected with which are attracting a good deal of attention, both in justice to the authors of that design and to enable those who are invited to support them to form an opinion on its merits. The main part of the illustrations connected with the Architectural Association excursion will therefore be published *en bloc* in our next week's issue, along with the latter portion of the account.

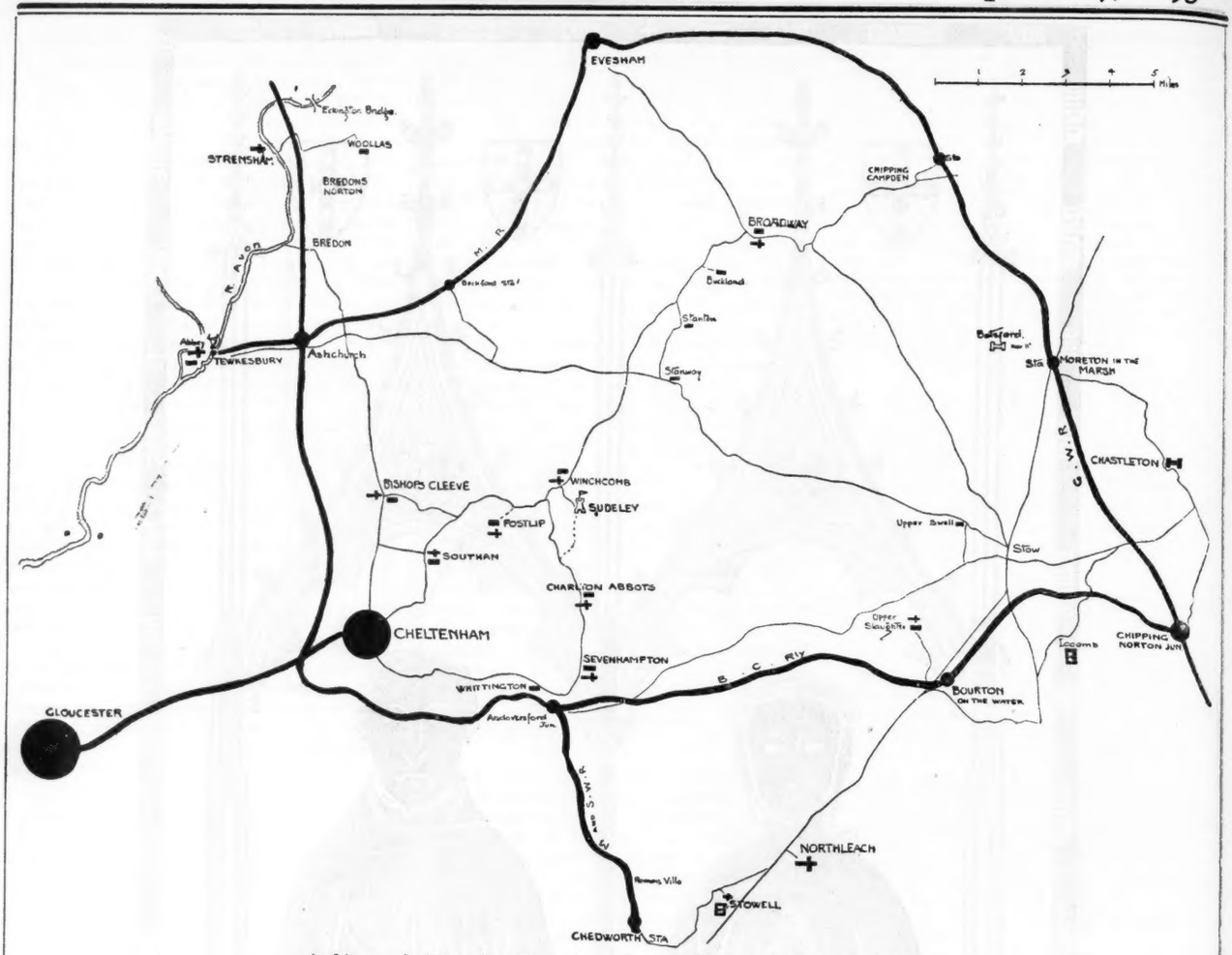
TWENTY-SIXTH ANNUAL EXCURSION.

The twenty-sixth annual excursion of the Architectural Association is now in progress, with Cheltenham for head-quarters, and the adjoining parts of Gloucestershire, Worcestershire, and Oxfordshire, forming the area which is being visited. In accordance with the usual custom, the majority of the excursionists gathered at the Queen's Hotel, Cheltenham, on the Saturday, and spent Sunday together in Cheltenham and in short informal excursions, but the official programme of the week commenced on

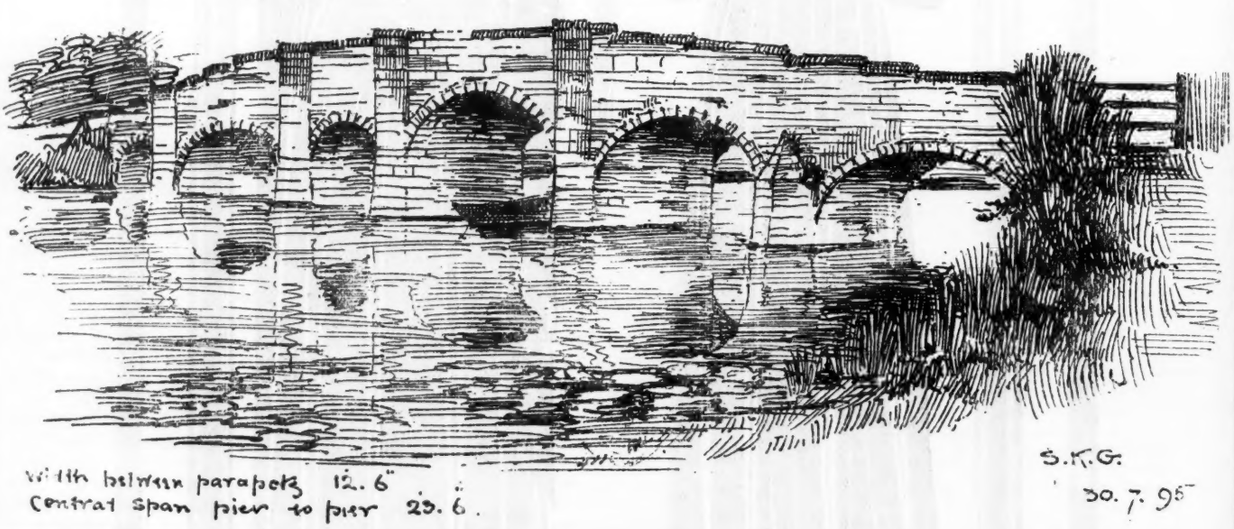
Monday.

The weather, of course, is the first thought of an excursionist, and hence our party were happy

Brass of William Grevel and wife: 1401. At Chipping Camden, Gloucestershire. Size, 8 ft. 6 in. by 4 ft. 5 in. From a Rubbing by Mr. Andrew Oliver, A.R.I.B.A.



Architectural Association Excursion: General Map of the District visited.

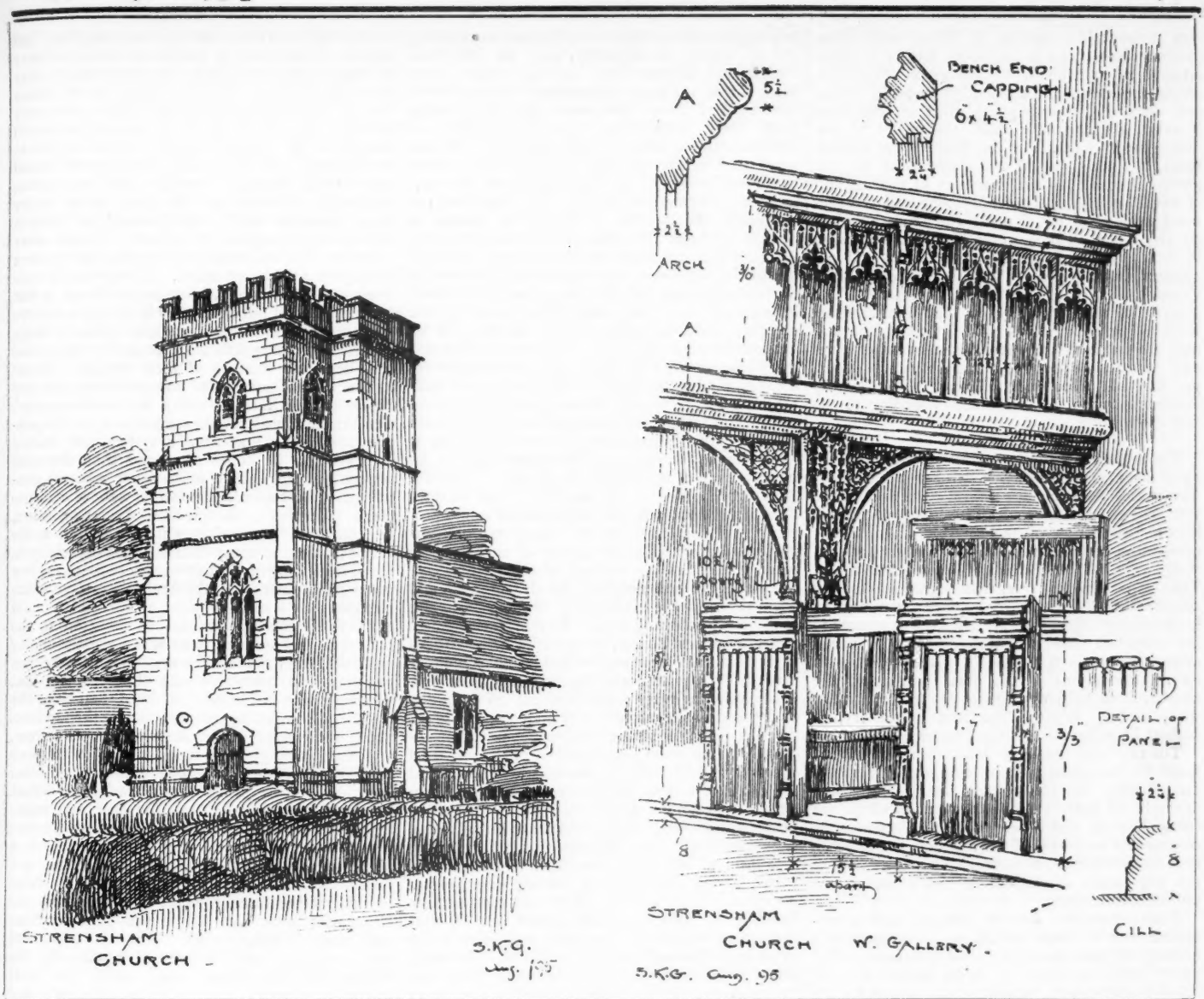


n starting under a clear sky, and with the prospect of a fine day. Fortune favoured them throughout the day, as the only showers that fell occurred during the halts, so that no inconvenience was experienced.

The first halt was made at the village of Southam, where the programme indicated the objects of interest as a Norman chapel and the farm houses of Pigeon House Farm and Manor House Farm. These were inspected in that order. The Norman chapel is, as regards its oldest parts, of very early date, but having been allowed to fall into disrepair, much of what now exists is modern, it having been restored by Edward, Earl of Ellenborough, in 1861. The chapel, as restored, is a veritable museum, including Indian marble carving in the font and sedile, German or Flemish pictures, Italian candlesticks, and various other importations, even to an Indian shield and tulwah. The chapel appears to have been connected with the Pigeon House Farm, in the grounds of which it stands.

The farmhouse and farm buildings are picturesque, but without much architectural interest beyond a couple of stone windows of Early Decorated type, which seem to indicate that considerable antiquity attaches to some, at least, of the buildings. Some seventeenth-century gates and piers are pleasing in their proportions and general treatment, though the mouldings are marked by the coarseness of detail, which is so frequently to be noticed in English work of the Early Renaissance. Amongst the curiosities of Pigeon-House Farm is a very antique cider-press, somewhat suggesting a modern pug-mill, and consisting of a heavy stone rolling wheel rotating in an immense rudely-formed pan of very hard stone. Its precise date it is difficult to assign with any degree of accuracy, but it is still used every autumn.

The Manor House Farm is of far more architectural interest. L-shaped on plan with the entrance and stair at the re-entering angle, it presents a stone front to the road with half-timber treatment at the rear. On close examination it is difficult to find any of these timbers more than 1½ in. thick, planted on to a brick backing and plastered between. There appears no reason to doubt that this work is original and coeval with the stone front, which bears a date-stone inscribed with the initials F. B. and A. B., with a heart



between, the former on the dexter, the latter on the sinister side, and below the figures 1631. We may, therefore, conclude that the sham half-timbering of our nineteenth century has at least one prototype of more than 250 years standing. There is no lack of good design in the house, the grouping and the detail of the stonework are alike excellent, whilst internally there is a very good staircase, a stone fireplace, and several doors of the ledged type, with panel mouldings planted on the face, which gave much employment to the pencils and 2-ft. rules of the party.

After two-and-a-half hours had been profitably and pleasantly spent at Southam, the excursionists proceeded to Bishop's Cleeve, situated on the rise of the Cotswolds, which has suggested that its name is derived from the Saxon term *cliv*, "a steep ascent," and its prefix given to distinguish it from Prior's Cleeve, it having been the property of the Bishops of Worcester, whose ancient residence afterwards became the rectory-house.

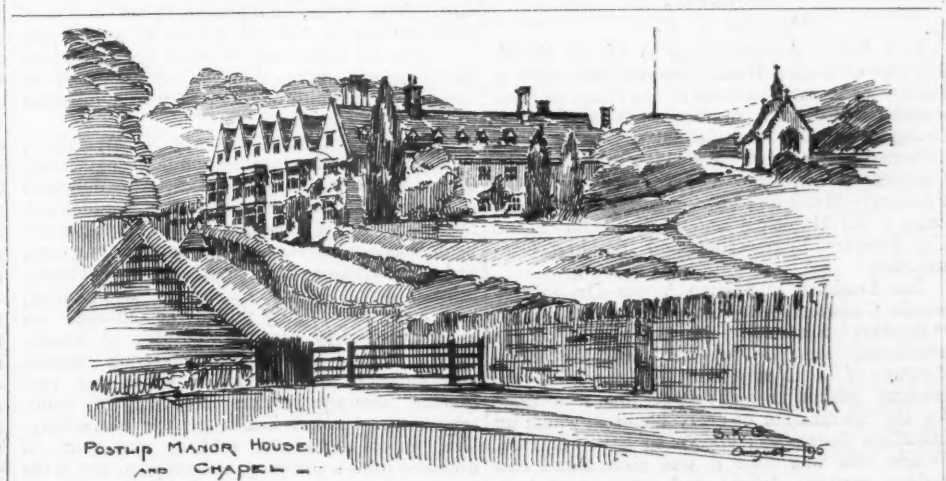
The chief object of interest in Bishop's Cleeve is the church, dedicated to St. Michael. This afforded the visitors much food for speculation and discussion, the original Transitional church having been considerably altered at various times. The primal plan appears to have followed with tolerable exactness that of the dominating example of the district, Tewkesbury Abbey, and to have consisted of a cruciform church, with ambulatory aisles to the nave and around the eastern apse. A central tower and two western turrets, with western entrance and south porch, were also part of the original structure. The principal modifications were made in the Decorated period, a new chancel was built, and a wide north aisle took the place of the narrow ambulatory on that side. At this time, probably, each alternate pier of the Transitional nave arcade was removed, as it is difficult otherwise to account for the exceptionally wide span and three-centred form of the arches of the nave arcade. A south aisle was added at a somewhat later date, but in this case the line of the old ambulatory was preserved in order to avoid interference with the rich Norman, or rather Transitional south doorway. The central tower, which seems to have had a spire of some kind, fell down in 1696, and the present tower was erected in its place in 1700, at which time the church "underwent a thorough repair," when possibly the magnificent and exceedingly beautiful western gallery was erected. This feature of the church is not only remarkably excellent in design, but is most cleverly planned to avoid any interference to the fabric of the church, and we sincerely hope that the mad idea now entertained of shifting its position to a meaningless and utterly inappropriate location in the north aisle will never be realised.

At least two additional altars besides the high altar existed. In the north transept there exist an altar-piece and the remains of a fresco painting of the Crucifixion, with the figures of SS. Mary and John, a crowned figure with an arrow, probably St. Edmund, and a fourth, whose iconography it is difficult to determine. Another altar is indicated in the north aisle by an altar-piece and the capping of a Perpendicular reredos.

Amongst other points of interest in the church are the sloping floor of the chancel, a very fine Renaissance tomb at the east end of the south aisle, belonging to the family of Baghott de la Bere, a wall-tomb, with canopy of fourteenth-century date, ornamented with curious ball-flowers, and with an earlier figure in chain-armour, the mail having been executed in gesso.

From Bishop's Cleeve after luncheon, a climb up the Cotswolds brought the party to Postlip Hall, a most charming example of an early seventeenth-century manor-house, erected by Giles Broadway about the year 1614, which date is inscribed on the interior woodwork. Postlip has the distinction of never having been the property of a titled owner; its pre-Norman holder in the time of Edward the Confessor was Godric; his successors, Ansfred de Corneille and William de Jolley, were "franklins," and so it continued. This William de Jolley was the builder of the Chapel of St. James in A.D. 1100, which, adjacent to the house, had nevertheless fallen into neglect and ruin until it was quite recently restored for divine worship, and blessed on June 16, 1891, by the Bishop of Clifton.

The chief glory of the home of Giles Broadway is the drawing-room, richly panelled and with



very remarkable carving in frieze and stone chimneypiece. Nor is this room merely a richly-ornamented apartment, it is pre-eminently an exceedingly pleasant and eminently "liveable" room, and many of the party spent most of their time therein. Although the chief, this is not by any means the only charm of the house; the dining-room, the hall, and the morning-room on the ground floor all contain examples of carving and of woodwork, as well as of planning and arrangement which go far to make the house an ideal country home. The staircase is singularly lacking in detail, and winds around a great solid wall in a manner more suggestive of the London County Council than of the seventeenth century. The exterior is no less delightful than the interior. Both the principal fronts, with their many gables, and the internal courtyard, are models of quiet and picturesque design, without fuss or fidget, yet full of grace and charm. Thus Postlip formed a capital and satisfactory ending to the first day's work.

Tuesday.

The second day of the excursion was heralded by drenching rain, which continued till midday, with scarcely a moment's intermission. Thus the visit to Tewkesbury resolved itself almost entirely into an inspection of the interior of the abbey (illustrated and described in the *Builder* series of "Abbeys of Great Britain," December 1, 1894). The inspection was very thoroughly made, and considerable discussion took place on the many interesting problems which the abbey presents to the architect and the archæologist. Especial attention was given to the old stained-glass, with its representations of the great patrons of the church, from Odo and Dodo, Dukes of Mercia, who, in 715, founded the first monastery, to Robert Fitz-Hamon and the Despensers.

The rain and the large demands on their time made by the abbey gave little opportunity to the excursionists to study and sketch the many examples of ancient Domestic work in which the town abounds, and which strikingly illustrate the commercial success of Tewkesbury in the fifteenth and sixteenth centuries, which only gave way to the supremacy of Bristol at the close of the seventeenth century.

After noon the weather cleared, and a new introduction to these excursions in the form of a boating trip was therefore duly appreciated. The party were conveyed by steam-launch up the Avon to Strensham, renowned in history for the siege it sustained against the Parliamentary forces, and for the signal bravery displayed by the then lord of the manor, Sir William Russell, both here as well as in the memorable battle of Worcester. Strensham also possesses interest as the birth-place, in 1612, of Samuel Butler, the author of "Hudibras."

The visitors' time, however, was devoted to the church, with its numerous monuments to the Russell family, not omitting the brasses, of which there are several, the earliest dated 1405 to Robert Russell. The church is not large, but the square western tower is good, and commands an extensive and remarkable series of views. The rood-screen has been transformed into a western gallery, whilst an old oak lectern, Mediæval tiles, fifteenth and sixteenth century pews all contribute points of interest.

Leaving Strensham, the party returned by the launch to Tewkesbury, and thence by rail to Cheltenham.

We shall continue our account of the excursion next week.

THE BRITISH INSTITUTE OF PUBLIC HEALTH:

CONGRESS AT HULL.

The fourth Annual Congress of the British Institute of Public Health has just been held at Hull. The actual business of the Congress commenced on Friday in last week at Hymers College, and the Presidential addresses were delivered in the four sections into which the Congress is divided. The sections were (A) Preventive Medicine; (B) Chemistry and Climatology; (C) Municipal and Parliamentary; and (D) Sanitary Engineering and Building Construction.

The President of Section A was Dr. Spottiswoode Cameron, who delivered an address on "Sanitary Reform." In the course of his concluding remarks he said that the introduction of a Notification Act enabled the medical officers in many large towns to press for the examination of every house in which an infectious disease was known to have occurred. Where this was done it was soon found that serious sanitary defects had often existed in dwellings entirely unknown to their occupants, and of which, consequently, had an infectious disease not broken out, nothing would have been heard. These circumstances strengthened the hands of those who were already pressing upon their authorities the desirability of systematically examining their districts. In one town of which he knew something every house was examined in that systematic manner. Certain information as to the number of occupants, the number of rooms, the means of ventilating them, the nature of the water supply, the kind and efficiency of the drainage arrangements, the sufficiency and situation of the sanitary conveniences, was collected, along with additional information as to any complaints made by the occupiers about nuisances in the dwelling or its immediate neighbourhood. Without claiming that the whole, or even the chief part, of the improvement in the health of that town was due to such examination, he would, however, remark that the death-rate, which had averaged for the five years preceding this house-to-house examination 22·3, had averaged during the last five years only 16·6, an improvement of more than 16 per cent. Had the Authority insisted on the removal of all sanitary defects so discovered, the improvement would probably have been even greater. Examinations thus made, sometimes in pursuance of a systematic plan, sometimes on account of the outbreak of disease in the near neighbourhood, had again and again revealed the existence of dangers to health of the most appalling kind. To find, for instance, in a row of new houses, in one of which a case of diphtheria had appeared — houses built under modern by-laws and carefully inspected when built —houses with every waste-pipe cut off from the sewer, and all the sanitary conveniences outside the dwelling—that a strong smelling chemical introduced into the sewer penetrated into the house itself in seven out of ten, was startling indeed. That indicated, of course, that there was a distinct connexion between the air of the sewer and that of the house, and showed the importance of investigating these conditions, even in houses as to the sanitary condition of which no complaint had ever been made. Such instances, he feared, were not uncommon. They went to show that even modern building by-laws, carefully carried out by able inspectors, would not necessarily guarantee a few years later the healthiness of a house. But what about houses constructed where the by-laws were not modern? In all these large towns there were many houses with wastes not severed from the sewers. In a recent investigation on the outskirts of a large town of some hundred contiguous houses, all more or less recently built, and of which nearly two-thirds had all their wastes cut off and the remaining third not, it was found that the smell of a chemical entered the house through the drains in 19 per cent. of the former and in 60 per cent. of the latter. Such instances as these, which could doubtless be multiplied from every large town, seemed to point strongly to the importance of a systematic examination of all houses, old and new, house by house, street by street, ward by ward. It was now universally admitted that the inhabitants of large towns must be provided with an adequate supply of pure water; that food offered for sale must be strictly and carefully inspected; that ashpits and court-yards must be frequently and periodically cleansed; that the healthy must be protected from contact with the infected. And yet in how many cases did workmen follow their employment in damp or confined workshops? How many persons live in unwholesome dwellings? and they heard no word of complaint till some infectious disease broke out or someone died. Was it not, he repeated, rather their duty systematically to visit all houses, all workshops, and ascertain beforehand whether the conditions there present were those which favoured or destroyed the health of those they were intended to shelter and protect?

Section D was presided over by Mr. W. Spinks, A.M.Inst.C.E., Lecturer on Sanitary Engineering at the Yorkshire College, Leeds, who delivered an address on Water Supply. The President, in the course of his address, said there could surely be no waste of water used for sanitary purposes, and the restrictions as to cisterns for water-closets, urinals, &c., required complete overhauling, and every opportunity should be afforded for a proper supply for the flushing of school-closets, public baths, and watering streets, and purposes of that kind, which are part of the sanitary services requisite in maintaining the general health of the community. The water should be sold at cost price, if obtained from a company, and supplied free if the local authorities are the undertakers. Immediately the water for domestic consumption had fulfilled its purposes, it became necessary to have another system of conduits for conveying it away from the houses. Up to quite recent times that, in some places, had been done in a very careless way, so much so as to be a source of danger to the public health. Now, thanks to the vigilance of the Local Government Board and to the County Councils, we are within measurable distance of the time when every place, however small, will be supplied with a well-arranged system of sewers. There were points in the construction of sewers which were worthy of a little attention. It was really saddening to come across, in so many places, a vast amount of good public money lying unproductive underground, expended on unnecessarily large sewers, and it was difficult to conceive what could have been the motives of their design. To err on the side of safety was commendable, but any excess of the limit of safety was extravagance. The ventilation of sewers remained a vexed question, and they still awaited a system that should be proved to be better all round than the open surface gratings. Like many other sanitary contrivances, this has broken down for want of management. Turning to the question of river pollution, he combated the notion which appeared to be very prevalent in many districts, and especially in the West Riding of Yorkshire, where there are few water-closet towns, that the domestic sewage which contains only a small portion of excrement could not possibly cause pollution. In addition to the pollution from sewage, there was a grosser one of pollution from trade effluents. There were just two points in connexion with that problem that he would like to submit to them, first as to the equity of compelling manufacturers to pay rates in aid of a sewerage and sewage disposal system, and then calling upon them to deal with their own liquid refuse at their own expense. Another branch of public sanitary engineering, to which he would like to refer, was the care and maintenance of roads. An ideal roadway surface should approximate as nearly as possible to a plane surface, so as to reduce the friction to a minimum, and consequently to increase the value of the tractive force exerted. Noiselessness and cleanliness were also important considerations that must be weighed up. Whatever pavement was considered best, it was after all only the veneer—the foundation was really the most important feature in road-construction, and unless that was sufficiently durable, and finished true, and in parallel lines to the surface, an even face could never be maintained on the pavement. Of course, granite pavements were not suitable in residential neighbourhoods, or in streets where retail business or office work was carried on, and something much less noisy, if not so economical, must be used. The asphalte pavement, formed from the natural mineral asphaltes, present a splendid surface, and could be kept very clean, but the noise caused by the striking of the horses' hoofs was a great objection. Wood pavements were not nearly so durable nor so cleanly, but they certainly carried off the palm for noiselessness. Since 1888, a new timber had been introduced from the forests of Western Australia, which is nearly as hard as teak, and has an absorption capacity not exceeding 10 per cent., and from a sanitary point of view it is claimed that the well-known antiseptic properties of the eucalyptus will prove an important feature in its favour. It possesses a natural oil in some degree equivalent in its action to the creosote forced into the deal blocks, and from experience gained in London it would appear the life of this class of pavement is likely to be fifteen years, and whilst the first cost is considerably higher, yet the annual charge for interest and sinking fund will not amount to more than 1s. per square yard, as against 1s. 1½d. for creosoted deal, whilst the cost for maintenance and repairs must, of course, be considerably less. Turning to sanitary building construction, the President said that the preparation of a site before building operations commenced seemed to be an art but little practised, if one excepted the making of them by tipping all kinds of undesirable refuse. It was really deplorable to come across so many commodious, well arranged, and excellent houses, save for the fact that absolutely no provision had been made for dealing with the sub-soil water. Before a brick was laid the nature of the strata underlying the basement level should be ascertained, and especially where the house was to be built on the slope of a hill. It frequently happened that these very important precautions were entirely neglected by the architect, and subsequently, probably on the occasion of

an outbreak of enteric fever, investigations were made by a sanitary engineer, which revealed the absolute necessity of measures for dealing with sub-soil water, and it was clear that whatever steps were undertaken for the purpose, after the erection of a house, could not be altogether satisfactory, and must likewise be more costly than if executed at the beginning. The principles of house-drainage should be perfectly understood. The two great stumbling-blocks and preventives had hitherto been the practical surveyor, who was considered to be *au fait* in drainage, and the odd man, who was deemed quite good enough to lay a pot-pipe. It was high time the worship of these idols ceased, and that the importance of having house-drainage designed by an expert was recognised. With regard to dry house-refuse, he said that no system of refuse-disposal was complete, and could not be satisfactory, until the questions of storage and removal were set on a right footing. Objections to the working of a refuse-destructor could not be made, for the time had gone by when it could be stated that the destructor was a nuisance to health, because they all knew that they could be so constructed and worked that neither gases or dirt would escape, provided the material was consumed as fast as it arrived at the depôt. On the question of house sanitation at watering-places the President spoke very strongly. Every hotel, hydropathic establishment, and lodging-house, before the commencement of the visiting season, should undergo a sanitary survey, and if found to be in a satisfactory condition, a certificate of its sanitary fitness should be issued, conditional upon its being hung in such a position in the establishment as to meet the eyes of everyone proposing to put up there. Nine-tenths of the people were entirely apathetic about those matters at home, and it was for the protection of such people when they went from home in search of health that he called for these necessary safeguards. He also appealed for proper sanitary provisions in private schools. Generally an ordinary dwelling-house served the purpose, and the arrangements suitable for a family of normal size were quite inadequate for thirty or forty children.

Mr. T. Blashill (London) moved a vote of thanks to the President for his address.

Mr. Edwin T. Hall (London) seconded the resolution, which was carried.

Mr. Blashill then read a paper on "Artisans' Dwellings in Flats," and was accorded a hearty vote of thanks for the same.

Mr. E. Manville, M.I.E.E., in reading a paper upon "Refuse Destruction as Applied to Electric Lighting Purposes," said that the attention given to the destruction of ashbin refuse had, during the past three years, materially increased, owing probably, in the first place, to the difficulty of finding suitable tips at which to deposit the refuse; secondly, to the increasing cost of the disposal of refuse; and thirdly, to the various opinions that have been expressed as to the amount of available energy that can be derived from the refuse if burned under proper conditions. The progress of the design of the dust destructor had certainly been one of slow evolution. In the first days of the design of these furnaces little seemed to have been considered beyond the means of burning, or partially burning, the refuse, without any consideration as to the treatment being carried on in a scientific manner, and, doubtless, this had had a great deal to do with the prejudice which still exists in many places as to the presence of such an installation within a large city or town. As long ago as 1892 the Vestry of St. Leonard, Shoreditch, having in view the erection both of a Central electric supply station and of a dust-destructor, he, in his capacity of their adviser, strongly recommended them to combine the two schemes. After careful investigation he felt enabled to assure them that all the steam required for the estimated electrical output likely in the first instance might be obtained from a properly designed dust-destructor. In arriving at that opinion he experimented on a large scale with samples of ashbin refuse, collected at a season of a year when household fires were not much in use, and he found it was extremely rich in carbon. Indeed, when the unsorted refuse was burned directly in a boiler it evaporated as much as 3 lbs. of water from and at 212 deg. Fahr., and his opinion that the steam required could be obtained from the burning of this refuse in a properly-designed arrangement of destructor-cells and boilers was founded on the supposition that only about one-third of the calorific value of the refuse would be utilised in the boilers, after due allowance had been made for the complete and perfect combustion of the ashbin refuse and its gases. The Vestry resolved that such a combination should be erected.

A vote of thanks was accorded to Mr. Manville, who, in acknowledging it, said that he agreed they could not generate the power as cheaply as on coal, but they must remember the refuse had to be burnt, and whatever they gained by utilising the gases was a pure and absolute gain.

Mr. R. S. Roundthwaite (Borough Engineer, Sunderland) followed with "Notes on the Construction of Infectious Diseases Hospitals, with special reference to the buildings erected for the Corporation of Sunderland." He said that in the first place the site should be reasonably removed from the vicinity of all residential and other inhabited property, though not necessarily to the middle of a moor or common, and it should likewise be within a reasonable distance of all parts of the district proposed to be served. In the second place, he thought the site should, if possible, have a gentle descent from the north and east to the south and west, and the brighter and more cheerful the aspects the better, for few things tended so much to assist a man and woman in fighting against disease as cheerful surroundings. The subsoil should, if possible, be of a light sandy nature, rather than heavy and clayey, so as to admit of quick surface drainage. There should be no thought of attempting to deal with even the small amount of sewage gathered from the various buildings upon land near the site; it should be carried right away to precipitating tanks as far from the hospital as possible, and there treated. With regard to the amount of accommodation required and the number of beds, the officials of the Local Government Board considered they should provide one bed for every 1,000 inhabitants. For Sunderland that would mean 140 beds, but they had deemed it sufficient to provide for fifty-two, although, no doubt, it would be necessary in the near future to make one or more additional pavilions. As to whether the wards should be one or two stories high, he thought the general consensus of opinion was in favour of one story. Personally, he was of opinion that covered corridors to be of any service as a protection against the weather, must seriously interfere with perfect isolation, and if they were constructed with the roof only and the sides from 3 ft. to 4 ft. high from the floor, they were cold and draughty, and worse than nothing at all. If they must be provided, he thought a double corridor with a central division was the best form to adopt. He was strongly of opinion that pavilions of the single story type were the best, with the nurses' duty-room placed centrally, so as to command the wards on either side. Another most useful and essential building was an isolation pavilion, the necessity for such lying in the fact that very frequently the preliminary symptoms were not sufficiently marked to enable the medical practitioner to pronounce with any degree of certainty the particular disease which the patient would develop.

Mr. Thomas D. Aldwinckle (London) also gave a paper on "The Planning of Fever Hospitals." Speaking generally, he said it had been assumed that the provision of one bed per thousand inhabitants was sufficient for the permanent requirements of a sanitary district, but such requirements would necessarily vary with the character of the population. There should be two entrances to a hospital, one the infected entrance, and the other the non-infected entrance, both controlled from the same porter's lodge, a wide roadway running round the whole as a neutral zone to separate the hospital from the surrounding property. All the buildings of an infectious hospital should be completely isolated, and stand perfectly free, without communicating corridors or covered ways of any kind. There should be two receiving-wards, one for scarlet-fever and one for diphtheria and enteric fever. Those two wards should not adjoin, but should be as near as possible to the wards of their respective diseases. It was undoubtedly an advantage for a convalescing patient to be removed from the disturbing surroundings of an acute ward as soon as possible. The warming and ventilation of the wards must be considered as one operation, and must also be dealt with in close relation to the climate. The key of the whole position was that for at least 300 if not 350 days in the year it was possible to open the windows of a hospital ward without danger or discomfort to the patient.

Mr. Baker (Middlesbrough) moved a vote of thanks to Mr. Roundthwaite and Mr. Aldwinckle, which was seconded by Dr. Sargent (Preston).

Mr. Edwin T. Hall recommended that in designing infectious hospitals for a growing town, the administrative portions should be erected in excess of immediate requirements, and rather with the view to the ultimate size contemplated as a maximum. Experience had shown that for safety a zone of 40 ft. between infected buildings and the boundaries of the site was sufficient, but, among other reasons, having regard to the natural sentiment of the neighbours, it was better to make this 80 to 100 ft. Two-storied pavilions should have no means of internal communication whatever, and all pavilions should be so separated as to allow of light at an angle of 22½ deg., with the horizon striking the base of the external wall.

The votes of thanks were then agreed to.

A garden-party was afterwards given at Tranby Croft by Mr. and Mrs. Arthur Wilson, and a dinner was held in the evening at the Royal Station Hotel. The work of the Congress was continued on Saturday, Monday, and Tuesday.

COMPETITIONS.

INFIRMARY, TENDRING, ESSEX.—At the last meeting of the Tendring Guardians, held on the 7th inst., the Clerk read the report of Professor T. Roger Smith upon the plans of the proposed workhouse infirmary which had been submitted to him. The report recommended the design of Mr. F. Whitmore, of Chelmsford, for adoption, it being, in the opinion of the Assessor, the most compact and suitable design of those sent in. It was resolved that, before adopting any plan, Mr. Whitmore be asked to state for the Board's information what his inclusive charges would be for preparing all necessary works, plans, and superintending the execution of the work.

Correspondence.

To the Editor of THE BUILDER.

DURHAM COUNTY BUILDINGS.

SIR,—The recurrence of bad faith in the promoters of competitions seems to be epidemic, and we have the latest exhibition of this kind of procedure on the part of the Durham County Council.

Everything seemed fair and straightforward; an important and difficult subject was proposed, an exhaustive number of drawings asked for, an assessor promised, and a protective deposit of 5*l.* 5*s.* was required. The conditions were issued about July of last year, and the publication of the result was put off again and again and delayed until some two months back.

In conjunction with my friend, Mr. Gerald C. Horsley, I submitted a design, only recently returned. We, as other architects, would not have competed had we considered the conditions to be anything but honourable and above suspicion, and we loyally accepted the assessor's award, though we have not seen Messrs. Cooksey and Cox's design. That the profession should be insulted by such iniquity is abominable, and it is to be hoped the Durham County Council will put themselves right with the public in repairing their breach of rectitude by entrusting the work forthwith to the successful competitors.

WILLIAM A. PITE, F.R.I.B.A.
11, *Hart-street, Bloomsbury-square, W.C.*
August 12, 1895.

THE INSTITUTION OF JUNIOR ENGINEERS.—The annual summer meeting of this Institution, whose headquarters are in London, takes place from August 17 to 24, the rendezvous being Belgium. The towns to be visited include Antwerp, where the municipal docks, M. Kryn's diamond-cutting works, and other places of interest will be opened to members' inspection. At Ghent, MM. Carels' engine-works, M. de Hemptinne's cotton-spinning works, and M. Van Houtte's nursery-gardens will be seen; at Brussels, the electric-lighting station; whilst at Liége the works of the Société Cockerill, the Vieille Montagne zinc-works, the St. Leonard locomotive-works, the Val St. Lambert glass-works, the small-arms factory, and the Electric Tramway Installation will be visited. In honour of the Institution a banquet is to be given by the Liége Section of the Society of Engineers from the University, and the members will also be the guests of the Société Cockerill. An excursion to Verviers, where the Chamber of Commerce will entertain the visitors, is arranged for the purpose of seeing works in connexion with the woollen-cloth industry. Here MM. Peltzer's works, and those of M. Duesberg-Delrez, La Vesdre, and M. Hauzeur Gerard fils will be opened. The celebrated Gileppe reservoir, from which Verviers receives its domestic and manufacturing supply, is also included in the programme. A large number of members have notified their intention of being present at the meeting, which promises to be one of the most successful the Institution has held.

Illustrations.

LECTURE HALL, IMPERIAL INSTITUTE.

THE drawing, which was one of those hung in the Architectural Room at the Royal Academy this year, shows the exterior of the projecting wing containing the Lecture Hall, with its rather peculiar but very original porch. The treatment of the exterior with the large amount of blank wall and the range of small lights above, aptly expresses the nature of the purpose of this portion of the building. The deep setting of the windows, with the double colonnettes in front of each pier, is a very effective incident in the architectural treatment.

The architect, as all our readers know, is Mr. T. E. Collcutt. The illustration is a good example of the care bestowed by him on the treatment in detail of the various portions of this great building.

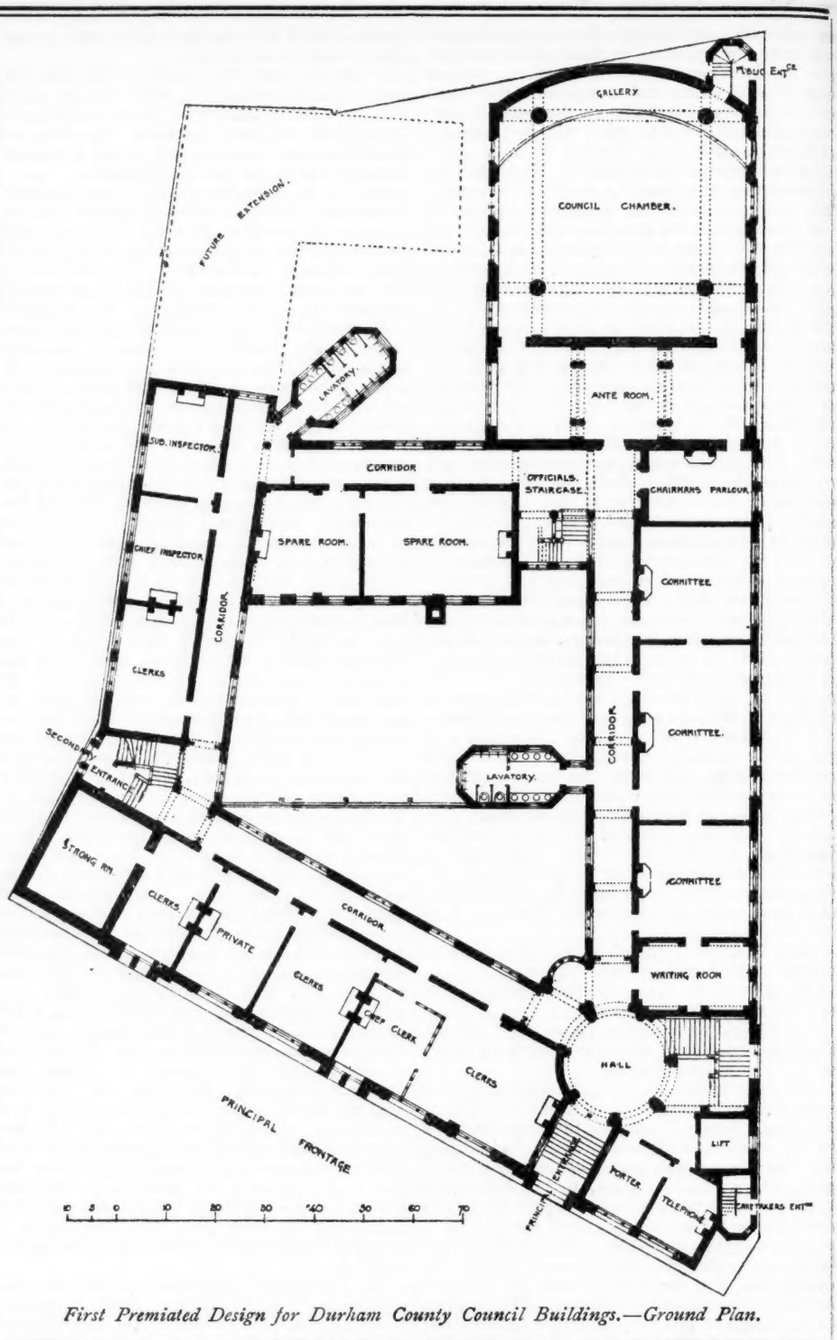
DURHAM MUNICIPAL BUILDINGS.

THE authors of this design for the new County Council Buildings in Old Elvet, Durham, which was placed first by the assessor in the recent competition, are Messrs. Cooksey & Cox, of Charing Cross. The ground floor of the building is raised somewhat above the level of the streets, and is approached through a vestibule into a circular hall, from which opens the committee-room corridor and that giving access to the offices of the Clerk of the Peace, which overlooks Old Elvet. The Council Chamber and committee-rooms are all *en suite*, and form a department by themselves, arranged along the west side of the site. Part of the east side is occupied by the offices of the weights and measures department, while a large area is still left for the future extension of the building. On the first floor over the office of the Clerk of the Peace is the engineer's department, while that over the committee-rooms is given up to the accountant and the members' tea-room, which is placed at the head of the staircase leading from the Council chamber. On this floor are also the offices of the technical education department and the medical officer, while on the floor above are accommodated the caretaker, the lavatory, &c., for the medical officer, and the loan library of the technical education department. The basement is given up to the election and ballot-rooms, storerooms, heating and lighting, &c. The authors have chosen a style best described as a modern treatment of the English Renaissance, which will be in complete harmony with the surroundings.

SKETCHES ON THE ROUTE OF THE ARCHITECTURAL ASSOCIATION EXCURSION.

THIS page of sketches was made for us by Mr. R. W. Paul to furnish a portion of the illustrations of places visited during the excursion.

As mentioned elsewhere, the chief portion of the illustrative sketches, made for the occasion by Mr. S. K. Greenslade, will be given in the plates of our next issue. An article on the first two days of the excursion will be found on another page, and will be continued in our next.



First Premiated Design for Durham County Council Buildings.—Ground Plan.

Books.

Public Baths and Washhouses. By ROBERT OWEN ALLSOP, Architect. London: E. & F. N. Spon. New York: Spon & Chamberlain.

THIS is a useful small book on the subject, as defining and calling attention to the requirements of the various departments of a public baths establishment. A technical work treating the whole subject of baths and their arrangement and construction, in a complete and comprehensive manner, has not yet been produced, though there is plenty of scope in the subject for a large work. In the meantime, Mr. Allsop's small book will be useful as a guide and suggestion to those who are new to the subject, in furnishing a certain amount of information and directing their attention to the requirements to be studied, though we must take decided exception to the model plan of a baths establishment given as an appendix. We do not gather very clearly from the text whether this is a plan actually carried out, or one proposed as an explanatory model plan. In the former case difficulties of site may be an excuse for the arrangement of the entrances, which, however, in any case is most objectionable. The object in the author's mind seems to have been economy in working, by making one ticket office with various windows serve for both sexes and both classes of bathers; and this is no doubt an important economical point, but it must be managed in a different way from that shown here. The street-door is the same for all, the entrance being up a "baths corridor" with the entrances for men and women at the end, side by side, and the two "classes" of bathers of each sex enter the same outer lobby by the same door. Many men (even) would dislike this arrangement; all ladies would, and families of the higher class would hardly like their girls to attend a bath of which the entrances were planned in this way; and rightly. We agree with the author that division into three classes is unnecessary; but where there are first and second class baths the street entrances should be separate, and where there are baths for both sexes in the same building (as is usually the case) the street entrances for men and women should also be entirely separate. The arrangement shown in the plan is absurd, and while the author rightly observes that long and complicated corridors are to be avoided, he certainly does not avoid them in this plan.

Practical information as to construction is given, and a section of swimming-bath and plans of heating and engine department, washhouse, &c. The author makes some good suggestions in regard to a scheme for providing cheap baths for the very poor, at a penny a head, which will be found at the end of the book, and which appear to be quite practicable and worth attention. Another point to be noted in regard to the separate baths is the suggestion that a cold shower should be fixed over every slipper-bath, without extra charge, in order to permit and induce the habit of taking a cold shower as a brace before proceeding from the warm bath to the open air. That there is often danger of taking cold from this procedure is probably perfectly true, and a caution against this, and advice to use a shower after the warm bath, might be affixed in each bath, as a suggestion to the many persons who do not understand taking care of themselves in this respect. The poorer classes especially are very apt, when once they indulge themselves with the luxury of a warm bath, to overdo the indulgence.

In regard to swimming-baths the author is undoubtedly right in saying that a long and comparatively narrow proportion is better than a shorter and wider one; it is length that a swimmer wants; and this point has in fact been practically recognised of late years, as it may often be observed that the baths of older date have the wider form, and those of more recent date the narrower. The narrow and long form has also the advantage that while the greater length is convenient to the practised swimmer, the lesser width is convenient and more encouraging to beginners who can only swim a little, and are not certain of their powers. We have before observed that the time has now arrived when the distinction in size almost

universally made hitherto between the swimming-baths for men and women should be abandoned, at all events for the "first-class" baths. Among the upper classes swimming is as much taught to girls as to boys now, and any observer at a seaside watering place will probably find that among the bathers some, at least, of the ladies, will be among the best swimmers present; and there is no reason why they should be denied the long swimming-bath which is considered essential for the men. In regard to one point of detail referred to by the author, we think that the gangway in front of the dressing-boxes should by preference be given a fall towards the boxes, and the small gutter required to drain it placed close up to the boxes, as it is not in the way there; a bather going in or out of the box would naturally step across it; whereas if the fall is the other way and the gutter next the outer edge of the gangway it is in the way of bathers "taking off" from the gangway.* The subject of roofing and lighting the swimming-bath should not have been referred to without a caution as to the necessity for giving attention to absolute security of any heavy glass used for roof-glazing; such glass ought to be fixed so that even if a sheet gets loose there is no possibility of it falling into the bath; a most distressing and fatal accident occurred from this cause some years ago in a swimming-bath.

The author gives a lucid description of the various systems on which the warming of the water in a swimming-bath may be and has been carried out, grouping them under four heads. Under ordinary circumstances no doubt the system of steam-injectors combined with circulation is the most efficient, but we are strongly inclined to think that the simple system which the author calls "No. 1," the addition of fresh warm water, has possibilities of producing better results than any other, if we suppose a liberal use of water and arrangement for its ingress at numerous points all round the bath; or, still better, at the bottom. Of course then the question of water-rate becomes serious; but at least fresh water would be continually brought in, and if properly arranged the distribution of warmth ought to be as complete as with the injectors. Does the latter (the most recent) system really avoid "patchiness" in the water? There is room for a little more complete evidence on that point. At all events, every system which involves circulation, and the return of the same water to the bath, has in itself an inherent vice, and nothing but sheer necessity for economising water can justify it. Imagine how different swimming-baths would be if they were served with a continuous fresh supply of water warmed to the necessary point, with a continuous escape of that which was cooling, instead of circulating and bringing back the same water. But we must evidently wait for our new London water-supply to accomplish that improvement.

Little suggestion is made about the architectural treatment of a swimming-bath, which the author seems to regard as rather a hopeless thing. The dressing-boxes and other surroundings are no doubt often treated in a very commonplace kind of joiner's work; this might easily be improved without much additional expenditure. In reality, a swimming-bath affords a great deal of architectural suggestiveness, and might be made a beautiful interior; but as swimming-baths are usually built out of rates, of course money is not generally allowed for this. In some of the more costly baths which have been erected the large open timber roofs are a mistake, architecturally; they make the upper portion of the hall dark and give dark reflections. A swimming-bath looks much more attractive when there is plenty of bright surface above it to give brightness to the water. A flat coffered ceiling with lights in it, a semicircular ceiling, or a set of domed compartments, are much more suitable and effective than a heavy-looking timber roof.

Les Artistes Célèbres: Polyclete. Par PIERRE PARIS. Paris: Librairie de l'Art.

M. PARIS's book is an interesting *résumé* of what is known about Polykleitos and his work. The author endeavours, of course, to establish by critical comparison and consideration which of the existing copies or reproductions of the Diadumenos and Doryphoros may be accepted as coming probably nearest to a representation of the original work; a kind of disquisition which appears to have endless attractions for students of Greek archæology, but which never seems to get out of the region of fancy into that of fact, and probably never can. M. Paris sums up with the conclusion that Polykleitos (who, he points out, was recognised by contemporary Greek opinion as the only superior of Pheidias) was a sculptor who had not the great ideas and the bold conception of Pheidias, but had within his own limits attained to greater perfection. He attributes to him the now well-known bas-relief on the most complete sculptured drum of the Ephesus columns, regarding the figure of Hermes there as allied to the school of Polykleitos, and observing that he was contemporary with Scopas, who is known to have carved one of the Ephesus columns, and that the Ephesians would not have associated any but an eminent sculptor with Scopas. On such bases are conclusions of this kind built. It would appear to us that nothing could well be further apart than the dreamy languor of the Ephesus Hermes and the manly simplicity of the reproductions of the Diadumenos. But for the discussion of these and other points we refer the reader to M. Paris's pages.

Figure-Drawing and Composition: Being a Number of Hints for the Student and Designer upon the Treatment of the Human Figure. By RICHARD G. HATTON. London: Chapman & Hall. 1895.

THIS is a very useful small book for beginners and (more especially) for those who require to have a general knowledge of the figure for architectural and decorative accessories. It does not go minutely into the subject of anatomy, but gives sketches and memoranda of the main points to be considered in representing the figure. The small outline-sketches of the figure in different positions and in different circumstances of composition, are well done, though in a slight manner, and indicate very well the points, for instance, which differentiate the male and female figure in general proportion and design, and the lines assumed by the figure in various attitudes.

In the concluding chapter on "Composition," the subject is well summed up and illustrated in a short space. The distinction between the decorative method of composition in the Louis XIV. and Louis XV. styles, on page 285, is very well put, as also the remarks on the different effect of long-distance and short-distance perspective, in scenes occupied with figures. The distinction expressed between pictorial and ornamental art, the former "displaying facts of life and experience," the latter "seeking first to make life beautiful," is perfectly correct, though, as the author adds, the two naturally cross and overlap.

The book is throughout well written, and suggests a great deal in a few words.

The Architectural Design of Harrow Church, Derived from a Study of the Building. By SAMUEL GARDNER. Harrow: J. C. Wilbee. 1895.

THIS is a handsomely got-up book, with many illustrations, and, as far as form is concerned, is a worthy monograph on the building with which it deals. It is expanded from a paper prepared on the occasion of a visit of the Clapton Architectural Club to Harrow in 1893, and is published, we gather, partly with the excellent view of interesting Harrow pupils in the church. The author does credit in his preface to the learning and ability displayed in the article on Harrow Church in the *Builder*, of January 26, 1895, which has induced him to reopen one or two of his chapters, after completion, in order to discuss points in which he did not agree with us. We need not reopen the discussion here; we think the article in our columns was the result of as long and careful study of the building as that of Mr. Gardner, with possibly more definite architectural and constructive knowledge. Mr. Gardner honestly gives our arguments in footnotes, and those who have studied the church can form their own opinion as to the probability of our views or those of the author. As a monograph, the book is a complete and creditable one, and we are glad to see it, and hope it will be bought by many parents of Harrow boys, as an encouragement to take interest in the history and architecture of their church.

Pocket-Book Calculations in Stresses, &c., for Engineers, Architects, and General Use. By E. MONSON GEORGE, M.Inst.C.E. London: E. & F. N. Spon; New York: Spon & Chamberlain; Calcutta: Thacker, Spink, & Co. 1895.

THIS is a real "pocket-book," small enough to be carried about, and giving the principal formulæ and calculations bearing on constructive problems, in good type and with many diagrams. Young architects should put it in their pockets and study it in the train and at other convenient spare moments.

The Pocket Technical Guide, Measurer, and Estimator for Builders and Surveyors. By A. C. BEATON. Seventh Edition. London: Crosby, Lockwood, & Co. 1895.

THIS is a still smaller pocket-book than the last, intended mainly as a guide and reminder to contractors as to what they should look out for in reading specifications, and what they should take account of in estimating. Its chief use would be to beginners in a builder's business.

The Student's Column.

METALS USED IN BUILDING.—VII.

ALUMINIUM.

ALUMINIUM has never been found in a metallic state in Nature; nevertheless it is one of the most widespread elements, and in the form of silicate of alumina is found in all clays, felspars, and a variety of other minerals. Regarded in a broad sense it is one of the most useful metals or metallic compounds employed in the building industries. Even if we exclude the various earths constituting the basis of bricks, terra-cotta, stoneware, &c., because they were described in detail in the last series of articles in our "Student's Column," we still find that aluminium and its compounds enter into a great number of building materials, or are used by the builder for divers purposes.

The principal ores of aluminium are:—

1. *Cryolite*, fluoride of sodium, and fluoride of aluminium (aluminium, sodium, and fluorine) with about 13 per cent. of aluminium.

2. *Bauxite*, alum clay, hydrated alumina, with silica and iron, having alumina from 46 to 58 per cent.

3. *Corundum*, pure alumina, viz., aluminium = 53·4, oxygen = 46·6 per cent.

Cryolite is a red or brownish mineral, semi-transparent, especially when dipped in water. It is rather brittle, and is usually found massive but in thin laminæ. The ore comes almost exclusively from one spot in Greenland, viz., Evigtok in Arksut Fjord. Before 1860 only small quantities of this cryolite were raised, but soon after that date the deposit was systematically worked, and the mineral was exported to a considerable amount. The mine, or quarry, may be described as a hole in the ground, of elliptical shape, about 500 ft. in length and 170 ft. in width. The ore has been exploited to the depth of about 120 ft., and drills have penetrated another 120 ft., proving the persistence of the ore to at least that depth. The mine is close to the water's edge. The ore occurs in a large vein running through gneiss, associated with galena, zinc blende, cassiterite, fluor spar, &c., and these are most abundant near the margins of the vein. The cryolite becomes darker as it is worked into, being, in fact, almost black in some parts. The special uses of the mineral will be given presently.

Bauxite is so named from the village of Baux, near Arles, in France. As this ore is likely to assume tremendous importance in the near future, if, indeed, it has not done so already, we may consider it at some length. The mineral was first found and exploited at the French locality mentioned, though, from the circumstance of its being highly ferriferous, it was then worked as an ore of iron. The real character of the material and its remarkable properties were revealed by Berthier. Its mode of occurrence was subsequently studied by M. H. Coquand, who describes* the mineral as of three varieties — pisolitic, compact, and earthy. The pisolitic variety does not differ in structure from the iron ores of Franche Comté and Berry, although the colour and composition are different. It occurs in highly-inclined beds alternating with limestones, sandstones, and clays of Upper Cretaceous age; also as pockets or cavities in the limestone. The latter near the bauxite is pisolitic, and the ore is occasionally compacted by calcareous cement. Other localities in France yielding this ore have been admirably described† by M. Angé.

In reference to German bauxite, Dr. Lang

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* It would be quite possible, and much neater, to make the channel behind the main supports of the dressing-boxes, and underneath the grated wooden floor which ought always to be provided in them. We do not know whether this has ever been thought of.

• "Bull. Société Géologique de France," tome xxviii. (1871), p. 98.

† "Bull. Société Géologique de France," tome xvi. (1888), p. 345.

remarks* that in Ober Hessen it is found as round masses in the fields, and embedded in clay coloured with iron oxide. Its composition varies widely. Examination with the microscope shows that it is principally derived from the decomposition of basalt.

By the weathering of the plagioclase felspars in that rock, as well as the augite and olivine, nearly all the silica has been removed, together with the greater part of the lime and magnesia; the iron has been oxidised, and hydrate of alumina formed. In a more recent dissertation, Herr A. Liebreich says† that the best known localities of bauxite in Germany are the southern slope of the Westerwald, near Mühlbach, Hadamar, in the neighbourhood of Lesser Steinheim, near Hanau, and especially the western slope of the Vogelsberg. An examination of micro-sections of bauxite from the last-mentioned locality shows that the majority of the specimens possess the structure peculiar to basalt, though, of course, in a greatly decomposed condition. On the other hand, in other places this structure seems to have broken up, the mineral being laid down, in a sedimentary form, as clay.

Turning to the occurrence of bauxite in our own country, we may say that it is only raised in Antrim, at the village of Straid, near Ballyclare and neighbourhood. The mineral was discovered in Antrim about the year 1870 and prior to that date English manufacturers obtained their bauxite entirely from French and German sources. The following diagram (fig. 5), shows its mode of occurrence in that county:—

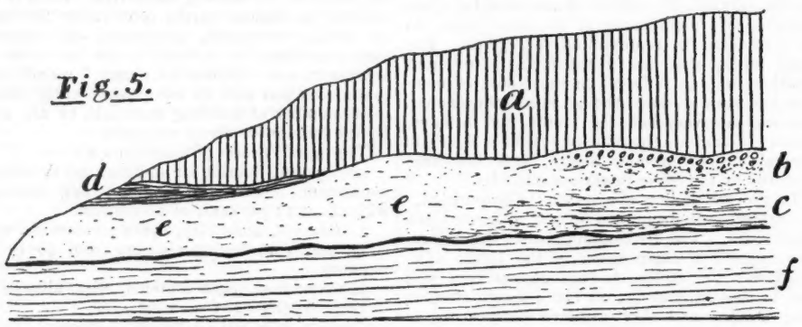


Fig. 5.—*Section showing mode of occurrence of Bauxite, near Ballyclare, co. Antrim.*

a=Basalt. *b*=Pisolitic iron ore. *c*=Pavement iron ore. *d*=Lignite. *e*=Bauxite. *f*=Bole.

From this it will be noticed that the upper part of the section is occupied by an irregular sheet of igneous rock—basalt—(*a*); whilst a bed of bole (yellowish red clay), is found at the base (*f*). Between these, on the right-hand side of the section, a deposit of pisolitic iron ore (*b*), above another iron ore disposed in a tabular manner (*c*) occurs. On the left-hand side is a bed of lignite (*d*), under which is the bauxite (*e*). Referring to this section, Mr. C. H. Williams remarks‡ that on its being traced up in the field, the iron ore bed gives way to the bauxite in nearly all cases. Like the pisolitic ore with which it is so intimately associated, it is found next the upper basalt (there being a lower bed of that rock some depth under the bole), unless it happens to be overlaid by the lignite, which is not a very persistent bed. There is a gradual diminution in size and number of the pebbles in the iron ore bed, and they finally disappear as the bauxite clay is approached. Lithomarge (yellowish red clay, differing from bole, amongst other things, in that it is infusible before the blow-pipe, whilst bole fuses easily to a yellow or green enamel) always maintains its regularity below the bole and bauxite.

The eagerness for the possession of bauxite has led to its discovery in recent years in several parts of the United States, especially in Georgia, Alabama, and Arkansas, the only States in which it occurs in sufficient quantity to be of economic value. The Georgia and Alabama deposits are found irregularly distributed within a narrow belt of country about sixty miles in length. No igneous rocks are found in its vicinity, nor are there any others that could yield bauxite as a residual deposit by weathering. To account for its origin, the suggestion has been made that the material came up to the surface in solution through the medium of hot springs (the former existence of which in the district may be inferred on good grounds), and then precipitated. The Arkansas bauxite, on the other hand, occurs as regularly stratified beds, found only near the contact of the material with certain igneous rocks with which their origin seems to be closely connected.

Turning now to the third-mentioned ore of aluminium, viz., corundum, we may say that it is found in a crystalline form (hexagonal), as well as massive and granular. Its colour is very variable; incidentally it may be remarked that when pure, transparent, and of good colour the red variety constitutes ruby, and the blue sapphire. Crystals of corundum found in alluvial deposits are generally very much waterworn. Emery is a black or greyish-black variety of corundum. From a chemical point of view corundum and emery are easily distinguished from each other in that the former is oxide of aluminium, whilst the latter contains oxide of iron also. Corundum is by far the more valuable mineral, being harder (9) and of greater durability. Boulders of emery embedded in a ferruginous soil, and sometimes in statuary marble, are found in several islands of the Grecian Archipelago, in Asia Minor, the Urals, and three or four localities in the United Kingdom, viz.: Cornwall, Cumberland, and the Mourne Mountains, Ireland. In the United States both corundum and emery occur in North Carolina. The former is found in pockets and veins usually 4 ft. to 12 ft. in width, chiefly in gneiss and schistose rocks, but also in connexion with olivine and serpentine. Crystals have been found weighing as much as 375 pounds. The mineral is frequently wrapped in layers of various other compounds containing alumina and magnesia, outside of which there may be another envelope, of corundum. Near Franklin, in the same State, emery is mined in a more or less "pockety" condition. It consists, at the surface, chiefly of hard emery rock, which continues to a depth of 8 ft. to 10 ft., and then thins out to a thin seam of flint. In the emery veins are found masses of red clay, carrying manganese-stained sand-corundum, into which the hard emery rock seems to merge at a slight depth. The emery, as exploited, is a mixture of rather fine-grained to medium-coarse corundum and magnetite, often associated with chlorite, hæmatite, quartz, mica, garnet, and pyrites. Sand-corundum consists of white or grey corundum crystals, about a quarter of an inch in diameter, embedded in a matrix of decomposed chlorite and red clay.

Another ore, not yet mentioned, is *aluminite*, which contains from 20 to 30 per cent. of alumina in a condition to be cheaply purified; the reason we have not given prominence to it is because it has not hitherto been exploited for commercial purposes. It has been found in such abundance within the past two or three years in the Western States of America, however, that it will no doubt be extensively used in the near future, when convenient carriage has been introduced.

And now as to the properties and uses of these aluminium ores. In the first place, we may say that cryolite and bauxite are extensively employed in the production of the metal aluminium. Although this metal was discovered by Wöhler as long ago as 1828, it has only within the last few years been able to be obtained successfully on the large scale, owing to improvements in the metallurgy of aluminous earths. It is a white, malleable metal, about as hard as zinc, and it fuses at a slightly lower temperature than does silver. We have stated that it occurs largely in a combined form in common clay. From this the student might, at first sight, imagine that such clay is suitable for producing the metal, but that is not the case—at any rate so far as the metallurgy of the subject reaches at the present time. Pure kaolin, or china clay, contains, on an average, about 39 per cent. alumina, carrying about 20 per cent. of aluminium, with 40 per cent. silica, and 14 per cent. of water.* Now, as silica is much easier to reduce than alumina by all methods of reduction thus far used for the manufacture of aluminium, this large percentage of silica must be separated from the alumina before the actual reduction is commenced, else a large percentage of the energy and of chemicals used in the reduction, will be expended in reducing a troublesome impurity, instead of reducing the alumina to aluminium. The value of clay, therefore, as an ore of aluminium is not apparent in comparison with richer and purer hydrated oxides of aluminium, having only accidental quantities of iron and silica, which have to be removed before being submitted to the reducing operation. The variability of the chemical composition of these "purer" forms may be gathered from the following analyses:—

Chemical Composition of French, German, and American Bauxite.

	French.		German.	American.		
	I.	II.	III.	IV.	V.	VI.
Silica	·30	2·20	1·10	2·80	5·11	3·34
Alumina	69·30	76·90	50·92	52·21	55·89	58·60
Iron oxide	12·90	·10	15·70	13·50	19·45	9·11
Titanic acid	3·40	4·00	3·20	3·52	—	—
Water	14·10	15·80	28·60	27·72	17·39	28·63
Lime	—	—	·80	—	—	—
Magnesia	—	—	·16	—	—	—

I.—Red bauxite from Thoronet, Var.
II.—White bauxite from Villeveyvae, Hérault.
III.—From Vogelsberg (probably the variety Gibbsite).
IV.—Dark-coloured bauxite from Floyd Co., Georgia.
V.—Black bauxite from Saline Co., Arkansas.
VI.—Red bauxite " " "

Chemical Composition of Irish Bauxite, Antrim.

	First Quality.	Second Quality.	Third Quality.
Alumina	53·83	52·00	46·13
Peroxide of iron	1·57	4·57	15·14
Lime	·62	·79	·18
Magnesia	·13	·20	·26
Potash	·01	·02	·04
Soda	—	·06	·24
Silica	8·67	12·00	10·40
Titanic acid	5·80	6·20	4·20
Sulphuric acid	·07	·07	·10
Phosphoric acid	trace	trace	trace
Combined water	29·27	24·00	23·39

(Analyses by Pattinson, of Newcastle-on-Tyne.)

Comparing the Irish ores with the others, we note that each of them contains a higher percentage of silica than any French, German, or American sample. On the other hand, the proportion of alumina in the first and second quality Irish compares favourably with the German and two American; whilst both the Antrim ores, lastly alluded to, contain much less iron than any other sample quoted, save that from Hérault—a very important matter. The red bauxite from Thoronet has more iron than is usually met with in these clays, and does not seem to be a specially good kind for the production of aluminium, though it contains a very high percentage (69·30) of alumina. The French samples, in fact, seem to be best characterised by the enormous quantities of alumina contained in them, and the variety from Hérault appears to be especially good. The further uses to which aluminium ores are put will be described in the next article.

OBITUARY.

Mr. R. M. Hunt.—We regret to record the death of Mr. Richard Morris Hunt, the well-known American architect, which occurred on the 31st ult. Mr. Hunt was born in Brattleborough, State of Vermont, in 1828, and was the son of the late Honourable Jonathan Hunt, Member of Congress. In 1843, at the age of 15, he accompanied his family to Europe, and entered a school at Geneva, commencing the study of architecture with Samuel Darier. From Geneva he went to Paris, and studied under Hector Lefuel, entering the Ecole des Beaux-Arts in 1845. On leaving the Ecole he travelled through Europe, Asia Minor, and Egypt, and on his return to Paris in 1854 he received from the French Government the appointment of "Inspecteur aux Travaux" on the new buildings uniting the Tuileries to the Louvre. His master, Lefuel, having during his absence succeeded Visconti as architect, he was put in charge of the Pavillon de la Bibliothèque, opposite the Palais Royal, and made, under Lefuel,

* "Berichte der Deutschen Chemischen Gesellschaft," Bd. xvii. (1884), p. 2,892.
† "Chemisches Centralblatt," 1892, No. 3, p. 94.
‡ "Trans. Manchester Geol. Soc." Vol. xxii. (1894), p. 521.

* *Cf.* "Mineral Resources of the United States for 1892," p. 236.

all the studies and full-size drawings of that Pavillon. In 1855 he returned to America and spent about six months in assisting the late Thomas U. Walter at the Capitol of Washington. He then, at New York, commenced the practice of his profession. Shortly afterwards he took an active and a prominent part in founding the American Institute of Architects. He succeeded R. M. Upjohn and Thomas U. Walter as President, and subsequently was elected President of the Institute under its re-organised constitution. He was also for several years President of the New York Chapter of the American Institute. Soon after commencing his career in New York, Mr. Hunt opened an architectural atelier for students on the French system. In 1867 Mr. Hunt served as a member of the Fine Arts Jury at the International Exposition in Paris; in 1876 he held the same office at the Centennial Exhibition in Philadelphia; and in 1893 he served as a member of the Fine Arts Jury of Selection, and as President of the Board of Architects at the World's Columbian Exposition at Chicago. In 1882 Mr. Hunt received from the French Government the decoration of the Legion of Honour, and was elected a Corresponding Member of the Institut de France in the following year. He was also an Honorary Member of the Société Centrale des Architects Français, and of the Architects and Engineers' Society of Vienna; and an Academician of St. Luke at Rome. Harvard University conferred on him the degree of LL.D. Mr. Hunt was an Honorary Corresponding Member of the Institute of Architects, and in 1893 he received from that body the Royal Gold Medal. In our issue for June 24, 1893, in connexion with the presentation of the medal will be found further particulars of Mr. Hunt's career, as well as a portrait of the deceased gentleman.

GENERAL BUILDING NEWS.

CHOIR-STALLS, PORLOCK PARISH CHURCH, SOMERSET.—In the parish church of Porlock, Somerset, which was restored in 1892, under the supervision of the late Mr. Sedding, new choir-stalls have just been erected. They are of oak, worked from the drawings of Mr. Sedding. In the front of the seats are panels carved in various devices. The ends of the seats are similarly treated, but each with different foliage.

NEW SANATORIUM, CARDIFF.—On the 8th inst., the new Cardiff Sanatorium was opened. The site is twelve acres in extent, on the Canton Moors, near the western boundary of the borough. The buildings include the administrative block, two main ward blocks, isolation block, laundry block, stable, disinfecting house, and mortuary. The administrative block is three stories in height, the rest being one story, with the exception of the stable block, which has two floors. There are three staircases, the main staircase in the entrance-hall, the nurses' staircase, and the servants' staircase, which is at the back of the building adjoining the kitchen. On the first floor there is a nurses' sitting-room and fifteen bedrooms, and on the second floor nineteen bedrooms; bath-rooms, lavatories, &c., are also provided on the first and second floors for the use of the staff. The wards are erected on the pavilion principle; there are two large wards in each main block, one for males, the other for females, each being 60 ft. by 26 ft., and two small wards for special cases, each 12 ft. by 12 ft. and 14 ft. high, the total number of beds thus provided being forty-four. Between the wards in each block there is a nurses' kitchen and duty room, with inspection window looking into each ward. At the end of each main ward are the water-closets, sinks, and bath-room, cut off from the building by a ventilated lobby; and adjoining each of the main wards is a veranda with French casement windows. In the main wards is a waiting-room, and also a bathroom with two dressing-rooms for discharging patients. The isolation block is divided into two equal parts by a wall, and the arrangements on one side of the wall are an exact counterpart of those on the other. Each of the larger isolation wards is 23 ft. by 15 ft., and the smaller wards 14 ft. by 14 ft., all 12 ft. high, providing in all accommodation for six beds. Between the wards will be the nurse's duty-room, with inspection windows as in the main wards, and adjoining will be bathrooms with space for movable baths. In addition to the ventilation provided by the windows, hit-and-miss ventilating grids are fixed immediately above the floor level, and Tobin's inlet tubes about 6 ft. high. Ventilating trunks are fixed in the ceilings connected to Shorland's extract ventilators on the ridge for carrying off the vitiated air. The wards, besides being heated by steam, are also provided with Shorland's patent Manchester stoves and grates. The wards, nurses' room, bathroom, &c., have no sharp corners or angles. Owing to the exceptionally low situation of the site the whole of the floors have been kept 6 ft. above the ground level, and the floors and main walls of the wards are carried on piers and arches. The floors of the wards are constructed of cement concrete carried on steel joists and finished with oak blocks, whilst the floors of the verandas, water-closets, and bath-rooms are similarly constructed, but finished with marble mosaic. The whole of the wards are connected with the administrative block by means of covered corridors. The laundry block contains a washhouse and finishing-room, drying-closet, engine-house, boiler-house, and coal-stores. The chimney is 70 ft. high, and adjoining it is an incinerator for the purpose of destroying bedding, bandages, poultices, and other seriously-infected articles. In the disinfecting house are two compartments, the one for infected clothing and the other for disinfected articles, and in the division-wall is built one of Washington Lyons' patent steam disinfectors. The mortuary is at the extreme south-east end of the site. The buildings are faced with Ruabon buff bricks above the plinth level, relieved by red bands and Forest of Dean stone-dressings, the rubble masonry under the plinth being built in blue Pennant stone, whilst the roofs are covered with Bangor slates, capped with red-ridge tiles. Space is reserved for five more main ward blocks and one isolation block, which will provide accommodation for 116 additional patients. The contractors for the work were Messrs. Turner & Sons, of Cardiff, and the cost of the buildings and furnishing will amount to about 40,000*l.*, exclusive of the cost of the land. The laundry machinery, boilers, kitchen appliances, &c., have been supplied by Messrs. Bradford & Co., Salford, who have also carried out the steam-heating of the wards. The buildings were designed by the Borough Engineer, Mr. W. Harpur.

INFIRMARY, ISLEWORTH.—The new Infirmary at Isleworth for the Brentford Union is nearing completion. The building is three stories high, and consists of four pavilions of three wards in each pavilion. It has been erected from the designs and under the superintendence of Mr. W. H. Ward, architect, of Birmingham. Mr. T. J. Messom, of Twickenham, is the builder. The wards are warmed and ventilated by means of Messrs. E. H. Shorland's patent ventilating Manchester stoves, with descending smoke flues.

TECHNICAL SCHOOLS AND GYMNASIUM, WINSFORD, CHESHIRE.—The Verdin Technical Schools and Gymnasium was opened at Winsford by the Duke and Duchess of Westminster on the 8th inst. The schools comprise class and preparation rooms, a chemical laboratory, an art store-room, plumbing-room, cookery-room, laundry drying and ironing rooms, and committee- and cloak-rooms. Messrs. Woodhouse & Willoughby, of Manchester, are the architects. In the centre of the block is the main entrance, surmounted by a large Flemish scroll gable and flanked on either side by subordinate gables, each with a chimney-stack springing from the apex, and connected by the ridge of the roofing with the main gable. Two subordinate doorways, similar in character and treatment to the principal entrance, provide direct communication—one with the boys' section of the schools and the other with the girls' department, while the front entrance leads directly through an ante-room to the gymnasium. Mullioned and transomed windows light the three principal elevations. The front of the building and part of the sides are faced with Ruabon red stock bricks, and all the dressings are in red terra-cotta. Internally, the joiner's work is generally of St. John's pine. The gymnasium measures 49 ft. 6 in. by 37 ft. 6 in., and is 30 ft. high from floor to ceiling. The cost of the building, including the furnishing, amounts to about 8,000*l.*

CONDITION OF WINCHESTER CATHEDRAL.—The condition of the roof of the nave of Winchester Cathedral is causing, says the *Bristol Times*, much anxiety. It is estimated that to carry out the work as it ought to be done an expenditure of some 5,000*l.* or 6,000*l.* will have to be faced. As long ago as 1873 the late Mr. Ewan Christian reported that the roof of the nave was "to a great extent in a very bad state," and that from the tower up to within 60 ft. of the western end, where it had been renewed, it was in a disorganised state. It was Mr. Christian's opinion that this was, without doubt, the original roof of William of Wykeham's work, and, though it was well and powerfully framed in respect of timber, it was then in a very weak condition. It was, he thought, impossible to say how long such a roof might stand, but it had been seriously weakened by the cutting of the timbers, and, being then without any inherent strength of its own, it had become a dead load on the walls. The whole of the lead, Mr. Christian complained, was also in a bad condition. Little, however, has been done since this report was presented. At the end of 1893 Mr. J. B. Colson, architect to the Dean and Chapter, presented a long report, in which he said that an absolute renewal of the lead was necessary on one-half of the north, and on the whole of the south, side of the roof. But more important than the state of the lead was the fact that most of the tie-beams, consisting of a series of trussed rafters, were in a seriously defective and disorganised state. The matter was still allowed to remain in abeyance, until two or three weeks ago, when Mr. Colson wrote that it was again his duty to call attention to the nave roof. "The time has arrived," he wrote, "when something must be done to the leads, even if the timbers are allowed to remain in their present condition. On the south side, where subsidences have taken place, three places to the extent of 12 ft. 6 in., 16 ft. 6 in., and 17 ft. 6 in. wide respectively, and on the north one place 9 ft. wide, the whole length, from gutter to gutter, require relaying; and I unhesitatingly say that unless this receives immediate attention there is danger of the whole slipping, perhaps forcing the parapet, and falling on to the lower roofs, with an effect to the timber and vaulting that must, at least, be disastrous and expensive to remedy." Stripping, recasting, and relaying the lead would cost, he estimated, at least 200*l.*, and if the repairs of a permanent nature which he advised were carried out on the roof in the near future, the amount spent on the leads would be almost entirely thrown away.

SCHOOLS, SHORT HEATH, STAFFORD.—On the 12th inst. the Bishop of Sbrewsbury opened the new infant room in connexion with the Church Schools at Short Heath. The new infant room will accommodate eighty infants, and may also be used as a parish room. Mr. M. Johnson, of Wolverhampton, has acted as architect, and Messrs. Gordon & Swann were the builders.

BOARD SCHOOLS, BLYTH, NORTHUMBERLAND.—On Tuesday the new "Forster" Board Schools, built by the Cowpen (U.D.) School Board, were opened. The schools are built on a site half an acre in extent, in Hambledon-street, on a portion of the Thoroton Croft estate. They are two stories in height, and consist on the ground floor of an infants' department, and on the first floor of a mixed elementary school, with a total accommodation for 650 children. The playgrounds are throughout covered with asphalte, finished with Derbyshire spar. The exterior walls of the building are of red brick-work, with red terra cotta strings and dressings to gables, doorways, &c. The contract, amounting to about 4,000*l.*, has been carried out by Messrs. H. Brown & Co., of Newcastle-on-Tyne, from the designs of Mr. J. H. Morton, of South Shields.

RESTORATION OF SMAILHOLM CHURCH, ROXBURGH.—The Presbytery of Earlston and the heritors of Smailholm have approved of plans for the improvement of the Parish Church. The plans, prepared by Messrs. Hardy and Wight, architects, Edinburgh, embrace, in their entirety, the complete restoration of the building, but at present these cannot be fully carried out. With the exception of the restoration of the chancel arch and gable for the nave, the expenditure will be limited to providing for the better accommodation of the worshippers. The work to be now done includes a new roof and floor, new seating, the addition of a north transept and vestry, and new ventilating and heating apparatus.

SCHOOL, AIRDRIE, LANARKSHIRE.—On the 13th inst. the new secondary school, which has been erected by the Airdrie School Board as a higher department of Airdrie Academy, was opened. The new building is situated on the lands of Mavisbank. The main building is a block measuring 85 ft. long and 59 ft. wide, and is of two stories in height. There are separate entrances for boys and girls. The elementary education accommodation is confined to the ground-floor, while the science and art department is to be accommodated on the upper floor, and will consist of a chemical laboratory, balance-room, instrument-room, mechanical drawing room, and cast-room, while provision is made in detached buildings for the teaching of cookery, laundry-work, and for modelling. Provost Aitken was the architect of the building.

SCHOOLS, BILL QUAY, DURHAM.—The foundation-stone of the new Wesleyan schools and vestries at Bill Quay have just been laid. The cost of the new buildings will be about 1,700*l.* The architect of the new premises is Mr. J. W. Taylor, of Newcastle.

SANITARY AND ENGINEERING NEWS.

DRAINAGE SCHEMES NEAR GOOLE.—We are informed that Mr. E. C. B. Tudor, C.E., of West House, Goole, has prepared a scheme of drainage for Rawcliffe, for the Goole Rural District Council, which is approved by the Local Government Board, and the Council are making application for the money. Mr. Tudor has also another scheme in hand for the Goole District Council, for the village of Swinefleet, together with other drainage and sanitary improvements to private residences upon which he has been consulted.

ELECTRIC LIGHT WORKS, SALFORD.—The electric light works of the Salford Corporation, situated in Walness-road, Lower Broughton, were opened on the 7th inst. Messrs. Kincaid, Waller, & Manville, of Westminster, were the electrical engineers who devised the scheme. The high-pressure alternating system has been adopted, by which the current is supplied at a pressure of 3,000 volts, through concentric copper cables, insulated with special impregnated fibrous compound, laid in cast-iron pipes. This pressure is reduced by transformers at consumers' premises to about 100 volts. There are three sets of engines and dynamos at the generating-station, each set capable of supplying 2,500 8-candle power lamps alight at one time, or to 2,800 lamps connected to the mains, it being found that only about 60 per cent. of the lamps connected are alight at the same time. As it is necessary to keep one of the sets of plant in reserve, the producing power of the station is equal to supplying 8,300 8-candle power lamps, connected to the mains. The cables have been constructed to supply 17,000 8-candle power lamps. The buildings were erected by Mr. Samuel Warburton for the sum of 6,600*l.* There are three sets of slow-speed horizontal compound condensing-engines of 200 nominal horse-power each, working

at 160 lbs. pressure, and running at eighty-five revolutions per minute. These were supplied by Messrs. Browett, Lindley, & Co., of Patricroft, at a cost of 4,309*l.* The engines drive the alternator dynamos by means of cotton ropes. The dynamos and exciters were supplied by Messrs. Mather & Platt, Ltd., of Salford, and are driven at the rate of 500 revolutions per minute. Messrs. Mather & Platt also supplied the switch-board and electrical instruments, the total amount of their contract being 3,150*l.*

WATERWORKS, PORTSOY, BANFF.—The formal opening of the new waterworks for a second supply of water to the burgh of Portsoy took place recently. The new reservoir is built of concrete, and is 100 ft. long by 20 ft. wide and 7 ft. deep, inside measurement, and will contain 80,000 gallons. The new supply is collected in gathering-pipes, and yields twenty gallons per minute. A 5-in. iron pipe conveys the water to the town from the reservoir. This new supply just doubles the available supply to the town. The architect is Mr. M'William, Portsoy; the contractor, Mr. Beveridge, Cullen; and the inspector of works, Mr. Cameron, Elgin.

FOREIGN AND COLONIAL.

FRANCE.—At the Hôtel de Ville, Paris, there is an exhibition of competition designs for a Mairie at Asnieres; more than fifty architects have taken part in the competition.——The jury of the competition opened at Dijon have awarded the first premium to MM. Auban and Godefroy, of Dijon; the second premium to MM. Brey and Rochefitte, also of Dijon; and the third premium to M. Constant Bernard, of Paris. The selected design consists of a large basement surrounded by balustrades reached by a staircase of six steps on each face. On this is a pedestal adorned with figures, symbolising Honour, Duty, Justice, and Science. Above this is the pedestal, decorated with the Gallic cock, with wings outspread, amid various symbols and inscriptions. The whole is surmounted by the bronze statue of Carnot, with a figure of Fame at his feet.——Another monument to Carnot is to be shortly erected at Nolay, his native town. On a pedestal of white veined marble, ornamented with symbols of Justice and War, is the figure of a child holding a cartouche of red marble with an inscription; above this is a pedestal decorated with laurels, carrying a group which represents Carnot dying, supported by a figure representing France. M. Falguière has been commissioned to complete this monument, which was commenced by the late sculptor, Roulleau. Another monument to Carnot, to be erected on one of the public places at Bordeaux, is to be carried out by M. Ernest Barrias. ——On Sunday last, at Remiremont, a monument was inaugurated in honour of French soldiers killed during the war of 1870. M. Gaudez is the sculptor. ——A statue of Joan of Arc, executed by the Duchesse d'Uzès, has been inaugurated at Pont à-Mousson.——A competition has been opened for the construction of a Hôtel de Ville at Montdidier. ——A bridge is to be constructed over the Rhone, between Barbantane and Aramon, carried partly on stone piers, but with a central suspension bay of 280 mètres in length.——Two lines of electric railway are shortly to be constructed in the higher Pyrenees, both starting from Pierrefitte—the one to Raillière, near Cauterets, the other to Luz St. Sauveur.——The death is announced, at the age of sixty-six, of M. Ancelet, a pupil of Baltard, who obtained the Prix de Rome in 1851. He had been elected Member of the Institut in 1892, in place of the late M. Bailly. Among his works may be mentioned the Château of Pau, one wing of the Château of Biarritz, the Salle de Spectacle at the Château of Compiègne, and the Vaucanson gallery at the "Conservatoire des Arts et Métiers" at Paris.

GERMANY.—The foundation-stone of the national monument at Berlin will be laid by the Emperor on the 18th inst.——The German national memorial of the Battle of Leipsic (1813) will be erected near the battlefield, to the south-east of the city. An extensive site has been purchased, and a competition has now been opened for the design. 40,000*l.* are at the disposal of the committee, who have, however, only reserved 250*l.* for premiums to the competitors. ——Of the many Bismarck monuments in course of erection throughout Germany, the Bismarck Tower at Göttingen is now nearing its completion. The tower, which has been built on a prominent hill, is 65 ft. high. The material used is stone, and the architect is Herr Gerber.—— The first sculptor engaged on the Martin Luther monument for Berlin, Professor Otto, died some time back. His place was taken by Herr Toberentz, who has also now died. The monument is, however, practically ready, and was unveiled last month, so that a third sculptor will not have to be employed. The monument is in the form of a statue of Luther on a high granite pedestal, surrounded by Melanchton and other prominent figures of his time. Professor Otto's commission was the result of a competition in 1885.——The popularity of exhibitions seems to continue in Germany, if we look through the list of those open this summer and the number planned for 1896 and 1897. Of larger exhibitions open at present we would mention one at Koenigsberg, known as the North-East Prussian Industrial Exhibition; another at Strasburg for Alsace industries; a third at Lubeck, known as the "North German Commercial Exhibition"; and a fourth provincial one at Posen.——Though the site reserved for next year's Industrial Exhibition at Berlin was unusually large compared with the ground taken up by international exhibitions in other countries, the area has not been found sufficient, and another 60,000 square mètres has been leased. Messrs. Siemens & Halske's electric railway to the exhibition grounds has now been taken in hand. Most of the tramways running in the direction of the exhibition will be rearranged as electric tram-cars. Various systems will be employed, and a Government committee will examine the merits of the different systems.——The completion of the new house for the Prussian Diet is promised by the end of next year. This building will be the first of the proposed group consisting of the homes of the Prussian Diet, the Prussian Upper House, and the Prussian Ministerial Offices. The buildings will have a mutual electric light station, and a central system of heating and ventilation.—— The new addition to the General Post Office at Berlin is now well in hand. Room will be found for the interesting Post Office Museum in the new wing, and there will be a large covered court for the principal exhibits of this collection. We would mention that the museum includes plaster models and plans of every post office in the empire. Most of the new structures are carried out in brick in what is called the "Hanoverian" style. They are generally very perfectly planned, as the Postmaster-General has made a specialty of his buildings, and allows his Board of Works a very liberal budget.——The old Opera House at Berlin is now in the hands of the builders. The front of the house is to be altered, and there will be a new stage. The Royal Opera Company is temporarily housed in Kroll's Theatre, which has been materially altered for this purpose. Unfortunately this building is most unsuitable for the performances, and both the staff and the audience are subject to much discomfort.——Berlin is to have a new Botanical Garden, which will serve the same purposes as our Kew Gardens. Dr. Guerke, the head of the German Botanical Institute, has been sent to Kew Gardens in order to prepare plans for his new conservatories on similar lines to ours.—— The chief of the Prussian Government Board of Works, Herr "Ober Baudirector" Spieker, will shortly retire. This office is the most important position open to the permanent Government building officials.

MISCELLANEOUS.

JOURNALISTIC ENTERPRISE. — To create an imaginary circulation for an architectural journal by sending out thousands of copies of it gratis on a special day, and simultaneously blowing trumpets about the enormous circulation attained, is an ingenious though not perhaps a very moral device, and may impose on the simple-minded. But it acquires a ludicrous side when the bundles of addressed wrappers, prepared in advance for the execution of the project, are inadvertently delivered, in the first instance, at the office of the wrong journal.

THE PRESIDENT OF THE PRUSSIAN ROYAL ACADEMY.—The new session of the Prussian Royal Academy will open under the presidency of an architect. Professor Ende, of the firm of Messrs. Ende & Boeckmann, of Berlin, has been elected to take the President's chair, in place of the painter, Professor Becker, who held office since 1882, and lately resigned. Professor Ende, who held the Vice-President's chair for years, is the second architect who has taken office. Professor Friederich Hitzig (1876) was the architect who preceded him. Professor Ende, who is the recognised leader of the German profession, not only practically holds every position of importance open to architects who are not permanent building officials, but at the same time is a most popular figure with the general public and the art circles of the Continent. Besides carrying on a very large practice as a private architect, and being responsible for numerous public buildings, he holds office in the "Akademie für Bauwesen," and is Consulting Architect to the various Ministries and public authorities. He holds professorships at the Royal Technical College and the Royal Academy, and masterships in various other institutions. It would perhaps be well to note that Professor Ende is one of those rare figures who never appears to be short of time, especially for his juniors and foreigners. Among his most important works we would notice the Japanese Houses of Parliament and Government Offices, which have been illustrated in the *Builder*. It is curious for English eyes to find the new President, Herr Ende, acting jointly with his partner, Herr Boeckmann, as builders and contractors, but this is by no means unusual for architects of standing abroad in whom clients have full confidence.

SANITARY INSPECTORS AT HUDDERSFIELD.—The Yorkshire Branch of the Sanitary Inspectors' Association held a general meeting at Huddersfield on the 3rd inst. The inspectors first visited the Hillhouse refuse destructor, and returning to Huddersfield were entertained to lunch in the Mayor's reception-room at the Town Hall, by the Health and Sanitary Committees of the Corporation. The members were afterwards conveyed by a special tram-car to the borough sewage outfall and purification works at Deighton. These works, with the land, have cost about 100,000*l.* Mr. R. S. Dugdale, C.E., the Borough Engineer, acted as guide, and described the works in detail. Having returned to the Town Hall, the members heard an address from Mr. R. W. Cass, Surveyor and Inspector of Pudsey, on "Some Important Details in Drainage and Sewerage." Mr. T. Pridgin Teale, of Leeds, President of the branch, presided. Mr. Cass dealt chiefly with the defects noticeable in house-drains, pointed out where many of the arrangements were at fault, and laid a heavy hand on the too-often scamped work of the jerry builder. By a series of diagrams, photographs, and models, he illustrated the manner in which dwellings often became insanitary, and how such serious evils might be overcome. The Chairman moved a vote of thanks to the Mayor of Huddersfield for the cordial character of his welcome. Referring to the subjects which had been laid before them, he said that a great deal had been done in late years, and a great deal had been done tentatively. They were bit by bit feeling their ground, and though they were right on the whole, there were many details which they could improve upon. The motion was seconded and adopted, and the Mayor replied.

BUILDING OPERATIONS IN THE UNITED STATES. —Everything, says the *American Architect*, points to a great increase in building operations in the near future all over the country. In New York, which, as the centre of business, feels very promptly improved general conditions, the amount of building is already enormous. The number of permits for the erection of new buildings during the past six months is almost exactly twice as great as the number issued during the corresponding part of 1894, and the proportion between the intended cost of the buildings for the two periods follows nearly the same ratio. Meanwhile, the number of permits for alterations has not very much increased, showing that the hesitating season of alterations, which usually precedes a time of confident and extensive building, is nearly over, and that New York, at least, is entering on a new era of development. How soon its example will be followed by other cities remains to be seen; but nothing is more certain than that the prosperity of one part of the country means the prosperity of all, and local conditions can only in a slight degree delay or modify the change which building interests have for the last few years looked and hoped for.

RUTTY'S ROAD-SCARIFIERS.—Messrs. A. & H. Rutty, contractors, of Bromley-by-Bow, have again secured the order from Her Majesty's Commissioners of Works to break up the whole of the main roads in Hyde Park and the other Royal Parks with their improved scarifiers, which will be working on these jobs daily till the end of September.

SANITARY INSPECTORS' ASSOCIATION AT DARWEN.—On the 10th inst. the members of the Sanitary Inspectors' Association (Liverpool centre) visited Darwen, where they were received by the Mayor. They were then conveyed to the Turton Moor Fireclay Works, where the appliances and manufactures were explained, and the party afterwards revisited the Bull Hill Infectious Diseases Hospital, and inspected several patterns of water-closets, &c., which had been specially fixed. The party afterwards inspected several fireclay works in the neighbourhood, next journeying to Oakenhurst, and inspecting the new main sewage works of the Darwen Corporation, which have been put down by the Corporation at a cost of 30,000*l.* in consequence of the action of the Ribble Joint Committee. The works were explained by Mr. W. Stubbs, A.M.Inst.C.E.

CHICAGO EXHIBITION, 1893.—The President of the United States has issued, under the authority of a special Act of Congress, a complimentary diploma to the Commissioners of the countries which took part in the Chicago Exhibition of 1893. The representatives of Great Britain who have received these diplomas, which acknowledge "the grateful appreciation of the Government and people of the United States of America for their valued participation" in the Exhibition, are Sir Richard Webster and Sir Henry Trueman Wood, the Chairman and Secretary of the Royal Commission. The diploma bears the Seal of the United States, and is signed by Mr. Grover Cleveland, the President, and by the late Mr. Gresham, Secretary of State.

PERTH BUILDERS' ANNUAL EXCURSION.—On the 7th inst. the Perth builders had their twenty-first annual summer outing. The trip this year consisted of a drive to Crieff *viâ* Methven and back by Muthill and Auchterarder. Crieff was reached about half-past twelve o'clock, and a little later dinner was served in the Commercial Hotel. Mr. A. Beveridge, builder, the President of the Association, occupied the chair. Various toasts having been honoured, Councillor Wood gave "The Town and Trade of Perth." Mr. J. Macfarlane, with whose name the toast was coupled, said that never in his experience had he seen anything like the present activity in the building trade. He had known it for thirty-seven years, and in that period wages had exactly doubled. That showed that all classes of tradesmen and working men must be prospering. Other toasts followed.

NEW WINDOW, GREENHEAD.—A new window, by Messrs. Stephen Adam & Co., of Glasgow, has just been inserted in Greenhead Parish Church, which is at present in course of renovation. The window, which is a memorial one to Mr. and Mrs. Tullis, consists of three lights, divided into six

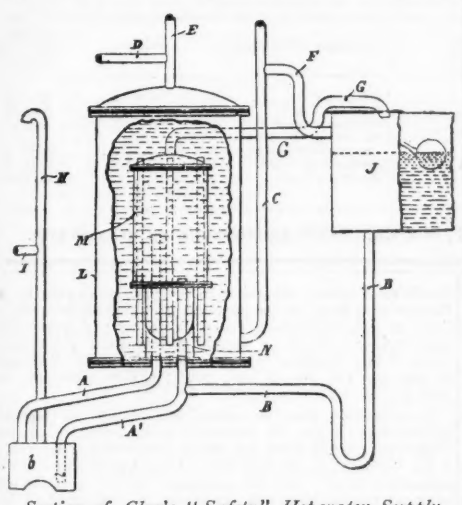
sections; the Nativity of Christ being recorded in the lower panels, while Christ in glory, with worshipping angels, is represented in the upper panels. Blues and greens predominate in the upper portion, while deeper blues, purple, umber, and gold are employed in the lower panels.

LONDON AND PROVINCIAL BUILDERS' FOREMEN'S ASSOCIATION. — This Association intend holding their second Annual Dinner to-day (Saturday), at "Ye Olde Four Swans Hostelrie," Waltham Holy Cross. The chair will be taken by Mr. W. Ebden, the President.

SCIENTIFIC AND TECHNOLOGICAL LITERATURE. —Messrs. Chapman & Hall have been constituted sole agents in this country, the Continent, and the Colonies, for the sale of the important scientific and technological publications of Messrs. Wiley & Sons, of New York, one of the first scientific publishing houses of the world.

PARTNERSHIP.—Mr. Jasper J. Kelf, of Walthamstow, has taken into partnership Mr. Arthur Mullings, who has recently been assistant to Mr. Fred. Chancellor, F.R.I.B.A. The business will in future be carried on under the style of Kelf & Mullings.

CLAY'S "SAFETY" HOT-WATER SYSTEM.—The accompanying diagram illustrates this ingenious system, which is worth attention. It is intended to supersede all necessity for special safety-valves by separating the circulating pipes carried through the house from any direct connexion with the boiler, and providing for the direct escape of steam as soon as the water reaches boiling-point. The boiler is supplied by the small regulating cistern, and the heated water circulates between the boiler and the cylinder, and as the inner cylinder is provided with a safety-pipe G, having an open end, the water can only retain 212 deg.; this being so, the water in the inner cylinder can only give off 212 deg. of heat to the water contained in the outer cylinder, and supplied from the store cistern. The water from the store cistern to the outer cylinder does not enter the



Section of Clay's "Safety" Hot-water Supply System.

boiler; there are two separate and distinct bodies of water. The water in the boiler can only be heated up to a definite and known number of degrees, which depends solely on the height of the small supply cistern above the boiler. The safety-pipe H, in the boiler flue, being open to the atmosphere, gives off all heat received from boiler, when the water within it reaches the boiling-point, in exactly the same manner as the spout of an ordinary kettle. The safety pipe H being very short, and in the boiler flue, can never fail to give relief to the boiler at all times. The regulating cistern and inner cylinder contain from six to twelve days' supply for the boiler, in case of prolonged frost; and if the supply of water fails from any cause, the boiler cannot, under any circumstances, explode, even when suddenly charged with water. The only result would be a temporary stoppage of the hot water supply. The patentee is Mr. Henry Clay, hot water engineer and plumber, of Liverpool.

GROSVENOR HOSPITAL FOR WOMEN AND CHILDREN.—The tender of Mr. T. J. Messom, of Twickenham, has been accepted at 3,000*l.* by the Committee, for the out-patients' department. The in-patients' part, or main portion, will follow next year, the drawings now being in course of preparation. Messrs. Roumieu & Aitchison are the honorary architects to the hospital buildings.

UNIVERSITY COLLEGE, LONDON.—The following medals and prizes in connexion with architectural study have been conferred during the Session 1894-5:—Fine Art; Donaldson Medal:—V. A. Flower (London). Prize; A. M. Watson (London). Third Class; A. S. R. Ley (Brackley).——Construction; Donaldson Medal:—A. T. Coode (London). Prize; J. S. Heath (Blackheath). Certificates, 3. J. N. Snell (Bromley). 4. A. E. Nicks (London). Second Class; F. Moore (Bickley). Third Class; J. M. R. Alves (Brazil) F. J. Freeman (Blackheath). H. T. Nation (Bedford).——Classes maintained by the Carpenters' Company. Architectural Drawing: First Prize. H. L. Bunn (London); Second Prize, L. Cabuche (London); Third Prize, G Jacob (London).—— Construction Drawing. Prize, O. J. Potter (London).——Measuring and Quantities. First Prize, F. Stacey (London). Second Prizes, *eq.* S. Green (London). S. Porter (London). Third Class. F. B. Chester (London). Sidney Ebbs (London). E A. V. Garnham (London). A. S. Seaman (London).

CARDIFF FREE LIBRARY.—This library is to be fitted with wrought-iron electric light fittings by Messrs. Braun & Co., of Birmingham.

BUILDING REGULATIONS, ROCHDALE.—At a meeting of the Rochdale building committee held on the 2nd inst., the proposed new building regulations for the borough were again submitted for consideration. An informal discussion followed, and in the course of this it was pointed out that the most important points awaiting settlement are contained in the regulations as to the thickness of the external walls of dwelling-houses, the making-up of footpaths running between the backs of cottages built in rows, and the height to which front walls should be carried in the case of dwellings provided with attic bedrooms. Originally the committee proposed to stipulate that the external walls of houses should be at least 16 in. thick—instead of 9 in. thick, as required by the by-laws now in operation—but at the last meeting it was evidently taken for granted that the Town Council would not approve of this change. Consequently, though no motion was submitted in relation to the matter, it was generally agreed that the committee should not insist upon the proposed stipulation being adopted, but should leave the old by-laws as to thickness of walls unaltered. As to the footpaths between rows of cottages, it was understood that the owners of the cottages should be required to make up the paths. Respecting the height to which front walls should be carried there was considerable difference of opinion, and no definite understanding could be arrived at. Eventually, without any resolution being formally adopted, the whole matter was adjourned for further discussion at the next meeting of the committee.—*Rochdale Observer.*

LEGAL.

AN IMPROPERLY-CONSTRUCTED STAIRCASE.

AT the North London Police-court, on the 9th inst., the case of Meeson *v.* Shurmur was heard before Mr. Paul Taylor. This was a case in which the defendant, in the erection of the Millfields-road Board School, had constructed a staircase of wood, and had formed the entrance-doors so that only two-thirds of their width opened out, the clear width of each doorway, which could be considered available for exit in case of panic, being only 2 ft. 2 in.

The District Surveyor, Mr. F. Meeson, had disapproved of this construction, and had, under Section 45 of the 1855 Act, served a notice of irregularity. This notice not having been complied with, he issued a summons under Section 46.

Counsel for the defendant, Mr. C. Glen, took a preliminary objection that the magistrate had no jurisdiction, quoting the case of the Queen *v.* Carruthers.

The magistrate, after perusing the case, decided that he had no jurisdiction. Summons dismissed.

CAPITAL AND LABOUR.

CONSOLIDATING BUILDING FEDERATIONS.—At the invitation of the London Building Trades Federation, a preliminary conference has been held at the Operative Bricklayers' Hall, Southwark Bridge-road, for the purpose of consolidating the various Building Federations throughout the country. The business resolved itself into the consideration of suggested rules for the National Federation, which were ultimately agreed to by the delegates, and ordered to be sent to the various federations throughout the country for their ratification. By means of this National Federation, over 70,000 organised building workers will join hands in defence of trade interests.

FEDERATION OF BUILDING TRADES IN SCOTLAND.—At a meeting of twenty-three members of the Scottish Building Trades Federation, on the 13th inst., at 5, St. Andrew-square, Edinburgh, a constitution and rules were formally adopted, and office-bearers were elected. The objects of the Federation, which is composed of employers only, are (1) to encourage, by friendly conference and otherwise, the maintenance of cordial relations between employers and operatives in the building trades, and the satisfactory adjustment of all differences arising from time to time; (2) to secure united action in dealing with demands made by workmen in reference to wages, hours of labour, piece-work, overtime, employment of non-union men, apprentices, use of machinery, and generally all restrictive conditions sought to be imposed upon the building trades; (3) to assist, as far as practicable, local associations in time of strikes and on other fitting occasions by such means as may be considered desirable; (4) to secure the recognition by architects, measurers, and others, of a fair and reasonable form of contract between contractors and their customers, and to further the adoption, in the building trades, of suitable rules for measuring work, and the adjustment of contractors' accounts; and (5) to establish branches of the Federation in towns and districts throughout Scotland, and render them suitable advice and assistance as required. Mr. David Heron, Edinburgh, was elected President for the current year, and Mr. John Adam, Glasgow, and Mr. J. B. Hay, Dundee, vice-presidents. An executive of twenty-one members was also appointed. The meeting was representative of the leading towns in Scotland.

MEETINGS.

SATURDAY, AUGUST 17 TO AUGUST 24.

Institution of Junior Engineers.—Belgian Summer Meeting, Antwerp, Ghent, Brussels, Liége, and Verviers. London Members leave Liverpool-street Station at 7 15 p.m., Friday, the 16th inst.; from North of England *viâ* March to Harwich.

WEDNESDAY, AUGUST 21.

Builders' Foremen and Clerks of Works' Institution.—Ordinary Meeting of the Members. 8 p.m.

FRIDAY AND SATURDAY, AUGUST 23 AND 24.

Association of Municipal and County Engineers.—Meeting in Londonderry.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

12,947.—DOOR KNOBS AND SPINDLES: *J. J. Sumner.*—The screw in the neck of the knob is dispensed with. In this case the neck is formed with a projecting rim or flange on its extreme end, a semicircular collar or washer is cut to fit on the neck, and screws passing through the rose of the handle also fix the handle by entering the collar or washer.

14,168.—LEVELLING INSTRUMENT: *J. W. Shepherd.*—Several modifications of the instrument are introduced for the purpose of measuring angles, gradients, and distances. Sights, a vernier needle, and a carefully-marked circle are placed above a base-board, whereon a compass, level, and graduated circle is also marked.

14,027.—SLIDING AND HINGED SASHES: *H. A. Dawson.*—A pointed and hooked bolt, with a spiral engaging spring, is the principal fastening, arranged so as to draw the doors or window-sashes together and prevent rattling.

15,123.—CHIMNEY POT AND VENTILATOR: *W. Peyton.*—This improvement has reference to a former patent, 6,545—91, and combines with trumpet-mouthed openings another series of openings near the top of the central flue, to increase the draught.

18,210.—COMPOSITION FOR ROADS, PAVEMENTS, AND FLOORS: *G. S. Cory.*—With asphalte or cement in a plastic state, indiarubber waste cut into very small pieces is mixed, and the whole pressed into blocks.

18,806.—FLUSHING CISTERNS: *C. H. Kitching.*—To obtain a better flush the valve-way and siphon connexion is made in the form of a breeches piece, and a full way is obtained, so that when the handle is pulled an instantaneous flush is effected, and the siphon acts at once, no abrupt turns impeding its progress.

4,438.—TILES: *J. T. Kohler.*—The shape of the tiles, the ridges, and edges, are made with a view to fitting, so that, although close expansion and contraction is allowed for, a special projection forms a weather-proof joint, preventing access of water between the meeting-ridges of the tiles.

11,131.—WATER-CLOSETS AND VALVES: *W. and N. T. Thomson.*—The arrangement of self-sealing valves, supply, and outlet are all modified and proportioned so as to secure a sluice, and to prevent the possibility of sewer-gas entering through the cistern. Several mechanical diagrams are given, and actions described.

NEW APPLICATIONS FOR LETTERS PATENT.

JULY 29.—14,351, R. Taylor, jun., and L. Dunkerley, jun., Machines for Sharpening Saws.—14,365, F. Henber, Artificial Stone —14,398, T. Morton, Combined Mechanism for Adjustable Openings for Ventilators, Gratings, &c.

JULY 30.—14,428, D. Butterfield, Door Check.—14,430, W. Franklin, Water-closets.—14,442, E. Von Leistner and H. Goetter, Building Setts.—14,463, D. Simpson, Revolving Window Frame.—14,464, C. Kingzett, Testing and Disinfecting Drains.—14,479, L. Clement, Non-slipping Kentish Ragstone and Bitumen Road-paving and Flooring.

JULY 31.—14,538, F. Borland and R. Gould, Chimney-pot or Cowl and Down-draught Preventer and Ventilator.—14,567, J. Whelan, Controlling the Admission of Water to Cisterns or Tanks.

AUGUST 1.—14,612, W. Craft and F. Mash, Stained Glass.—14,621, O. Lauch, Facing or Covering of Walls.—14,634, E. Eliot, Indicating Device for Doors and Gates.

AUGUST 2.—14,062, J. Hardy, Valve Arrangement for Syphons used in Cisterns.—14,663, W. Broughton, Stands for supporting Theodolites, Levels, &c.—14,664, E. Bernard, Connexions for Earthenware Water-closets, Urinals, &c.—14,678, E. Fraser, Gratings for Floors, Footways, &c.—14,706, P. Varilla, Mechanical and Electrical Apparatus for Excavating and Removing Earth.

AUGUST 3.—14,716, J. Hay, Wash-out Water-closet.—14,732, F. Buckland, Attaching Knobs or Handles of Door-fastenings.—14,744, S. Timings, Swing Joints or Pivots for Windows, Ventilators, &c.—14,752, T. Shillito, Fixing Mouldings to the Walls of Buildings.—14,763, E. & G. Francis, Safety Device for Windows.—14,790, P. Stuart, Blocks for Paving, Flooring, Landings, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

12,572.—J. Morris, Silent Spring-Hinge.—13,108. W. Tonks and J. Burn, Door-Chains.—13,276, H. Vaughan, Hanging and Fastening Window-Sashes.—13,571, A. Anderson, Bakers' Ovens.—13,720, E. Astle & C. Terry, Chimney or Ventilator-Hoods or Cowls.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

17,747, F. Oliver, Paint.—17,797, J. Kennedy, Window-fastener.—11,495, C. Field, Ventilators and Chimney-tops.—12,064, E. de la Sauce, Metal Window-frames.—12,866, E. Phillips, Monumental Stones, Grave-stones, Monuments, &c.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*School Buildings, and Master's House	Houghton Regis Sch. Bd.	.....	Sept. 7
Sewage Scheme	Hartley Wintney (Hants), R.D.C.	10*l.*	Sept. 28
Sewerage and Sewage Disposal Scheme ..	Marlborough (Wilts) T.C.	100*l.*	Nov. 9

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Schools	Harrington (Cumberland) Sch. Bd.	W. G. Scott	Aug. 20
Sewerage Works	Gorton (Lancs) U.D.C.	Lomax and Lomax ..	do.
Engine House, &c. Stanningley, Leeds .	Trustees of S. Varley	J. Waugh	do.
Stabling, &c. Acorn Inn, Bramley, Yorks		S. Jackson.....	do.
Two Cottages, Barn Farm, Elmstone ...	Cheltenham Corp	*Official*	do.
Paving Several Streets	Belfast Corporation ..	do.	Aug. 21
*Resetting Boilers	Wandsworth & Clapham Un.....	do.	do.
Alterations, &c. to Church, Langwathby R.S.O.	Rev. W. Lovejoy	.....	do.
Assembly Hall and Premises, Harrogate	Salvation Army	H. E. & A. Bown	do.
Lavatories, &c. George-street, Devonport	.....	W. N. Richards	do.
Villa, Almouth, Northumberland	.....	M. T. Wilson	do.
Factory, Birtley, Durham	Northern Co-op. Soc...	.....	Aug. 22
Thirteen Houses, Annfield Plain, Durham	Co-op. Soc.	G. T. Wilson	do.
Eleven Cottages, Road, &c. Blaengarw, Wales	do.	J. Rees	do.
Bakery and Offices, Muirkirk, N.B.	do.	.....	do.
Sewering and Kerbing, Taylor's-road, &c. Manchester	.....	J. Bowden.....	do.
Two Houses, Terrace-street, Barnsley	.....	H. Crawshaw	do.
*Ironing Machine	Chelsea Guardians....	*Official*	Aug. 24
Baptist Chapel, Crown-lane, Maldon, Essex	.....	P. M. Beaumont.....	Aug. 26
Ten Houses, Lound, Kendal.....	Co-op. Soc.	J. Hutton	do.
Pavilion at the Park	Hanley (Staffs) Corp.	J. Lobley	do.
*Stores, Workshop, Walls, &c.	Colchester Corp.....	*Official*	do.
Kerbing, Flagging, &c.	Runcorn U.D.C.....	do.	Aug. 27
Granite Road Metal	Sevenoaks U.D.C.	J. Mann	do.
Schools, Newark	Leicester Corp.	Everard & Pick	do.
Sewerage Works, Bedlinog, Wales.....	Gelligner and Rhigos R.D.C.	J. Jones.....	Aug. 28
*Trial Borings	Nottingham Corp.....	D. M. S. Gaskin	Aug. 29
Sewer Pipes	Rugby U.D.C.	D. G. Macdonald ...	Aug. 30
*Sewerage Tank, &c.	Manchester Corp.	T. de Courcy Meade ..	Aug 31
*Covering River Medlock at Bradford-road Gas Works.....	do.	*Official*	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Broken Guernsey Granite	Romford U.D.C.....	*Official*	Aug. 31
*Wagon and Carts	Borough of West Ham	L. Angell	do.
*Three Houses, Barnet	T. Smith	.....	do.
Schools, Coolkenny, Malin, Ireland	J. M'Cullagh	.....	Sept. 2
Granite Road Metal (200 tons).....	Diss (Norfolk) U.D.C.	J. Alger	do.
*Excavating and Levelling Site for Asylum	Hertfordshire Lunatic Asylum	G. T. Hine.....	do.
*Post Office, Victoria Docks	Commrs. of H.M. Wks.	*Official*	do.
*Broken Guernsey Granite	Brentford U D.C. ..	do.	Sept. 3
*Blocks of Dwellings for Working Classes	London County Council	do.	do.
Pier, Dunbeath	Caithness C.C.....	J. Fraser	do.
*Alterations, &c. Workhouse	Stepney Union	G. E. Holman	Sept. 5
*Superstructure of Machine Shop, &c.	Williams & Robinson, Lim.	T. W. Willard	do.
Aqueduct from Loch Katrine	Glasgow Corp.....	J. M. Gale	Sept. 7
*Underground Convenience	Limehouse Bd of Wks.	*Official*	Sept. 9
*Mortuary, Coroner's Court, &c.	do.	do.	Sept. 10
*School Buildings	West Ham Sch Bd. ..	Newman & Jacques ..	Sept. 24
New Roads, Pembroke-avenue, Hove	Trustees of Vallance Estate	Clayton & Black.....	No date
Additions to Manufactory, Birmingham..	Ingall, Parsons & Co...	Bateman & Bateman..	do.
Villa, Bourne End, near Maidenhead	T. C. J. Williams	J. Sawyer	do.
Club House, Leeds	South Ward Liberal Club Co.	W. Thorpe.....	do.
Additions to All Saints' Church, Pontardawe, Swansea	A. Gilbertson	E. H. L. Barker	do.
Additions to Academy, Fraserburgh, N.B.	.....	Jas Souttar	do.
Shop, Residence, &c. Roden-st. Belfast....	.....	W. J. Moore	do.
Additions to Hanham Tabernacle, Bristol	.....	J. H. Latrobe	do.
Cottage, Murtle, Aberdeen	.....	Matthews & Mackenzie	do.
Reservoir, Old Town, near Hebden Bridge, Yorks	.....	Judson & Moore	do.
Laundry, "Eccles" Hotel, Glengariff, Cork..	.....	A. Hill	do.
Shop and Residence, Sunday's Well, Cork	.....	A. Hill	do.
Factory, Crewkerne, Somerset.....	.....	Hy. Hall	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
Clerk of Works	Swansea T.C.	2*l.* 10*s.* per week	Aug. 26
*Surveyor	Croydon U.D.C.	300*l.*.....	Aug. 28
Draughtsman	Wolverhampton Corp.	100*l.*.....	Aug. 31
*Surveyor	St. George-the-Martyr Southwark Vestry ..	250*l.* &c.	Sept. 2
*Inspector of Nuisances	Beckenham U.D.C ..	175*l.*.....	Sept. 9
*Borough Surveyor's Assistant	Guildford Corp.	3*l.*	No date

Those marked with an asterisk (*) are advertised in this Number. ***Competition, p.*** iv. ***Contracts, pp.*** iv., vi., vii., ***and*** viii. ***Public Appointments, pp.*** xvi. ***and*** xviii.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

JULY 31.—By *Douglas Young*: 26, Somerleyton-rd., Brixton, u.t. 71 yrs., g.r. 9*l.*, e.r. 52*l.*, 400*l.*; 11, St. Paul's-rd., Kennington, u.t. 30 yrs., g.r. 5*l.*, r. 32*l.*, 215*l.*—By *Glasier & Sons*: "New House Farm," 234 acres, West Chiltington, Sussex, f., 3,000*l.*; "Hatches and Park Farms," 196 acres, f., 2,400*l.*; "Southlands Farm," 151 a. 2 r. 38 p., f., 2,250*l.*—By *Furber, Price, & Furber*: 21, Betterton-st., Long Acre, f., r. 50*l.*, 700*l.*; f.g.r. of 30*l.*, Sardinia-st., Strand, reversion in 9 yrs., 1,350*l.*; 52, Stanhope-st., f., area 1,640 ft., r. 70*l.*, 2,000*l.*—By *R. Tidey & Son*: 16, Addison-rd. North, Kensington, u.t. 48 yrs., g.r. 10*l.*, e.r. 55*l.*, 500*l.*; 1 and 2, Florence Villas, De Beauvoir Town, u.t. 29 yrs., g.r. 13*l.*, r. 84*l.*, 425*l.*; 29, Londesborough-rd., Stoke Newington, u.t. 69 yrs., g.r. 5*l.*, r. 30*l.*, 300*l.*; 110, Evering-rd., u.t. 79 yrs., g.r. 10*l.*, e.r. 70*l.*, 700*l.*

AUGUST 1.—By *A. Barton*: 9 and 11, Taunton-rd., Lee, Kent, u.t. 64 yrs., g.r. 10*l.*, r. 72*l.* 16*s.*, 475*l.*—By *C. C. & T. Moore*: F.g.r. of 4*l.* 4*s.*, Heath-st., Stepney, reversion in 30 yrs., 110*l.*; 322 and 324, Mile End-rd., Mile End, f., r. 103*l.*, 1,530*l.*—By *Rogers, Chapman, & Thomas*: 59, 63, and 85, St. Quintin-av., Kensington, u.t. 84 yrs., g.r. 26*l.*, r. 133*l.* 10*s.*, 990*l.*; 7, The Avenue, Brondesbury, u.t. 63¾ yrs., g.r. 20*l.*, r. 100*l.*, 1,175*l.*—By *Newbon & Co*: 326, Gray's-inn road, King's Cross, f., r. 90*l.*, 2,040*l.*; "The Marquis of Lorne" beerhouse, Goswell-road, St. Luke's, f., r. 75*l.*; 1 and 3, Gee-st., f., r. 37*l.*, 1,720*l.*; 5 to 21, Gee-st., f., r. 247*l.*, 2,845*l.*; 18, Cloth Fair, Smithfield, f., r. 32*l.*, 385*l.*; 55 and 56, Middleton-sq., Pentonville, u.t. 17 yrs., g.r. 20*l.*, r. 120*l.*, 635*l.*; 1 and 3, Victoria-rd., Finsbury Pk., u.t. 79¾ yrs., g.r. 15*l.*, r. 76*l.*, 790*l.*; 14 and 110, Philbeach Gardens, South Kensington, u.t. 80 yrs., g.r. 38*l.*, r. 185*l.*, 2,170*l.*; 44, 46, and 50, Lillie-rd., Brompton, u.t. 74 yrs., g.r. 33*l.*, r. 150*l.*, 1,040*l.* — By *A. J. Sheffield*: 18, 19 and 19a, Railway-st., Bromley, f., r. 80*l.* 12*s.*, 795*l.*; 1, Byron-st., f., r. 28*l.* 12*s.*, 250*l.*; 7 and 9, Abbott-rd., Poplar, u.t. 78 yrs., g.r. 10*l.*, r. 76*l.* 14*s.*, 575*l.*; 40 and 42, Arcadia-st., u.t. 59 yrs., g.r. nil., r. 46*l.* 16*s.*, 300*l.*; 81, Brunswick-rd., u.t. 47½ yrs., g.r. 4*l.*, r. 31*l.* 4*s.*, 195*l.*; 24, Chadbourn-st., Bromley, u.t. 47 yrs., g.r. 3*l.*, r. 19*l.* 10*s.*, 75*l.*; 157, Salmon's-lane, Limehouse, f., r. 26*l.*, 325*l.*—By *Seagrave, Browett, & Taylor*: 41 and 43, Prebend-st., Islington, u.t. 32 yrs., g.r. 10*l.* 10*s.*, r. 78*l.*; 425*l.*; 47, Prebend-st., u.t. 32 yrs., g.r. 6*l.* 6*s.*, r. 38*l.*, 250*l.*; 1, 2, 4, 5, 6, and 7, Queen Adelaide-rd., Penge, u.t. 54 yrs., g.r. 30*l.*, r. 230*l.*, 1,700*l.*; 8, 9, 10, and 11, Queen Adelaide-rd., u.t. 43 yrs., g.r. 13*l.*, r. 146*l.*, 800*l.*; 12 to 16, and 18 to 20, Queen Adelaide-rd., u.t. 54 yrs., g.r. 50*l.*, r. 420*l.*, 3,115*l.*; "Hamilton House" and "St. Leonard's," St. John's-rd., u.t. 54 yrs., g.r. 20*l.*, r. 140*l.*, 965*l.*

AUGUST 2.—By *R. A. Notley*: 3, Mitre-ct., City of London, f., r. 155*l.*, 3,650*l.*—By *Newman & Newman*: Two enclosures of land, Copthorne-rd., Burstow, Surrey, 10 a. 2 r. 10 p., f., 162*l.*; "The Recreation Ground," 3 a. 2 r. 34 p., f., 50*l.*; a freehold farm and two enclosures, 33 a. 1 r. 13 p., f., 850*l.*; two enclosures of land, 3 a. 3 r. 17 p., f., 151*l.*; two enclosures and an orchard, 7 a. 3 r. 15 p., f., 181*l.*

AUGUST 6.—By *Debenham, Tewson, & Co.*: 35, Cliftongardens, Maida Vale, u.t. 53¾ yrs., g.r. 7*l.*, 425*l.*—By *Dowsett, Knight, & Co.*: "Lily Villa," Fordwich-next-Sturry, Kent, f., 240*l.*

AUGUST 7.—By *Langridge & Freeman*: "West Bank," Borough Green, Kent, and 68 a. 2 r. 1 p., f., 4,150*l.*; The Old School Cottages, f., r. 16*l.* 18*s.*, 130*l.*—By *E. W. Richardson & Son*: 17, 19, 21, 23, 26, 28. 30, 32, and 34, Rowsell-st., Bow, u.t. 79¾ yrs., g.r. 36*l.*, r. 243*l.* 2*s.*, 1,200*l.*; 59, Alderney-st., Pimlico, u.t. 37 yrs., g.r. 8*l.*, r. 65*l.*, 510*l.*; 15, Modbury-st., Kentish Town, and 1 to 14, Modbury-yd., u.t. 54½ yrs., g.r. 20*l.*, r. 125*l.*, 990*l.*; 21 and 23, Montpelier-rd., Peckham, u.t. 64 yrs., g.r. 11*l.* 10*s.*, r. 60*l.*, 420*l.*

AUGUST 8.—By *H. C. Newson*: Sawtry Lodge Farm, Sawtry All Saints, Hunts., 124 a. 3 r. 14 p., f., 1,200*l.*—By *Farebrother, Ellis, Clark, & Co.*: 132, Fenchurch-st., City of London, a redeemed land-tax of 7*l.* 17*s.* 8*d.* per annum, 205*l.*—By *W. A. Blakemore*: 15, Dacre-st., Westminster, and 3 cottages, f., r. 50*l.*, area 1,580 ft., 1,090*l.*—By *Newbon & Co.*: 78 and 80, Devonshire-rd., Holloway, u.t. 57¼ yrs., g.r. 10*l.* 10*s.*, r. 66*l.*, 675*l.*; 6, Marlborough-rd., u.t. 62¾ yrs., g.r. 7*l.* 7*s.*, r. 38*l.*, 310*l.*; 155, Isledon-rd., u.t. 64 yrs., g.r. 7*l.* 15*s.*, r. 36*l.*, 315*l.*; f.g.r. of 7*l.* 10*s.*, Blake's-rd., Peckham, reversion in 73 yrs., 155*l.*; 18 and 19, Walmer-rd., Plumstead, f., r. 52*l.*, 470*l.*; "Enever House," Colworth-rd., Leytonstone, f., r. 30*l.*, 370*l.*; 137, Wightman-rd., Hornsey, f., r. 39*l.*, 545*l.* — By *Weatherall & Green*: F.g.r. of 78*l.* 15*s.*, Lynton-rd., Acton, reversion in 82 yrs., 2,210*l.*; f.g.r. of 124*l.* 5*s.*, Pierrepont-rd., reversion in 82 yrs., 3,510*l.*; f.g.r. of 170*l.* 3*s.*, Rosemont-rd., reversion in 82 yrs., 4,730*l.*; f.g.r. of 21*l.*, Mayfield-rd., reversion in 82 yrs., 580*l.*; f.g.r. of 31*l.* 10*s.*, Creswick-rd., reversion in 82 yrs., 910*l.*; f.g.r. of 21*l.*, Brett's-pl., reversion in 82 yrs., 530*l.*; f.g.r. of 60*l.*, The Green, Stratford, reversion in 79 yrs., 1,580*l.*; f.g.r. of 52*l.*, Romford-rd., reversion in 79 yrs., 1,480*l.*; i.g.r. of 84*l.* 10*s.*, Swaton-rd., Bromley-by-Bow, u.t. 67 yrs., g.r. 2*l.*, 1,710*l.*; i.g.r. of 107*l.* 5*s.*, Fairfoot-rd., u.t. 67 yrs., g.r. 2*l.*, 2,080*l.*—By *A. Robertson*: F.g.r. of 19*l.*, The Broadway, Bexley Heath, reversion in 30 yrs., 530*l.*; f.g.r. of 3*l.*, The Broadway, reversion in 27 yrs., 135*l.*; "Elizabeth Cottage," Hampden-rd., Friern Barnet, f., 155*l.*; a freehold plot of land, Colney Hatch-lane, 64*l.*; f.g.r. of 6*l.* 6*s.*, Lordship-lane, Dulwich, reversion in 72 yrs., 170*l.*; f.g.r. of 6*l.*, Landcroft-rd., reversion in 84 yrs., 155*l.*; f.g.r. of 8*l.* 8*s.*, Heber-rd., reversion in 76 yrs., 220*l.*; f.g.r. of 14*l.*, Heber-rd., reversion in 72 yrs., 365*l.*; f.g.r. of 10*l.*, Heber-rd., reversion in 81 yrs., 255*l.*; six freehold plots of land, Vicarage-rd., Leyton, 616*l.*; five freehold plots of land, Benhill-rd., Sutton, 248*l.*; f.g.r. of 23*l.*, Victoria-rd., reversion in 72 yrs., 610*l.*; f.g.r. of 10*l.*, Victoria-rd., reversion in 71 yrs., 270*l.*; 11 and 12, Selden-ter., Nunhead, u.t. 69 yrs., g.r. 10*l.*, 275*l.*

AUGUST 9.—By *C. & H. White*: 25, Hackford-rd., Brixton, u.t. 3 yrs., g.r. 3*l.* 8*s.*, r. 22*l.* 2*s.*, 30*l.*; 27, 29, and 31, Hackford-rd., u.t. 4 yrs., g.r. 24*l.*, r. 75*l.* 14*s.*, 96*l.*; 66, 68, and 70, Abbey-st., Bermondsey, f., r. 120*l.*, 2,010*l.*; 55, Abbey-st., f., r. 52*l.*, 495*l.*; 1 to 6, Fendall-st., f., r. 122*l.* 4*s.*, 790*l.*—By *R. Reid*: F.g.r. of 23*l.* 4*s.*, Elgin-cres., Notting Hill, reversion in 56 yrs., 6,290*l.*; 85, 87, 89, and 91, Grove-lane, Camberwell, f., e.r. 150*l.*, 1,220*l.*; 96 and 98, Camberwell-grove, f, r. 34*l.*, 710*l.*; f.g.r. of 32*l.*, Camberwell-grove, reversion in 23 yrs., renewable for a further term of 99 yrs. on payment of a fine of 32*l.*, 720*l.*; f.g.r. of 30*l.*, Grove-lane, reversion in 23 yrs., renewable for a further term of 99 yrs. on payment of a fine of 30*l.*, 650*l.*; "The Hollies," Queen's-rd., Richmond Hill, u.t. 62 yrs., g.r. 12*l.* 10*s.*, r. 95*l.*, 700*l.*; 1, Elm Mews, u.t. 62 yrs., g.r. 2*l.* 10*s.*, r. 15*l.*, 190*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8/0/0 0/0/0
Teak, E.I.	load	10/0/0 16/0/0
Sequola, U.S. ft. cu		1/10 2/2
Ash, Canada load		2/15/0 4/0/0
Birch, do.		2/5/0 3/10/0
Elm, do.		3/10/0 4/15/0
Fir, Dantsic, &c.		1/15/0 3/10/0
Oak, do.		2/15/0 4/15/0
Canada		6/0/0 7/10/0
Pine, Canada red		0/0/0 0/0/0
Do. Yellow		2/15/0 5/0/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10/0
Wainscot, Riga, &c., log		4/10/0 6/10/0
Odessa, crown		4/10/0 6/10/0
Deals, Finland		
2nd & 1st std 100		7/0/0 8/10/0
Do. 4th & 3rd		7/0/0 8/0/0
Do. Riga		7/0/0 8/0/0
St. Petersburg,		
1st yellow		9/10/0 12/0/0
Do. 2nd yellow		7/10/0 9/0/0
Do. white		8/0/0 9/10/0
Swedish		7/0/0 15/10/0
White Sea		7/10/0 15/0/0
Canada, Pine 1st		22/0/0 24/0/0
Do. do. 2nd		16/10/0 17/10/0
Do. do. 3rd, &c.		8/5/0 10/10/0
Do. Spruce, 1st		9/0/0 10/10/0
Do. do. 3rd and 2nd		6/10/0 7/10/0
New Brunswick		6/0/0 7/0/0
Battens, all kinds		5/0/0 21/0/0
Flooring boards, sq., 1 in. prep.		
1st		0/9/6 0/14/6
Do. 2nd		0/6/6 0/11/6
Other qualities—		0/4/6 0/7/6
Cedar, Cuba ..ft.		/3 /4
Honduras, &c.		/3 /4½
Mahogany, Cuba		/3 /6
St. Domingo, cargo av.		/3 1/0
Mexican do. do.		/3 /4
Tobasco do. do.		/3½ /5
Honduras do. ..		/3½ /5½
Box, Turkey ton		4/0/0 15/0/0
Rose, Rio		7/0/0 16/0/0
Bahia		6/0/0 15/0/0
Satin, St. Domingo		0/0/3 0/1/0

TIMBER (*continued*).		
Satin, Porto Rico		0/0/6 0/1/6
Walnut, Italian		0/0/3 0/0
METALS.		
Iron—Pig, in Scotland	ton	2/5/7 0/0/0
Bar, Welsh, in London		5/12/6 5/15/0
Do. do. at works in Wales		5/2/6 5/5/0
Do. Staffordshire, in London		6/0/0 6/10/0
COPPER—British cake and ingot		49/10/0 50/0/0
Best selected		50/5/0 50/15/0
Sheets, strong		56/0/0 0/0/0
Chili bars		46/12/6 46/17/6
YELLOW METAL		0/0/4-5/16 0/0/4½
LEAD—Pig, Spanish	ton	11/0/0 11/2/6
English com. brands		11/1/3 11/3/9
Sheet, English, 6 lbs. per sq. ft. and upwards		12/0/0 0/0/0
Pipe		12/10/0 0/0/0
ZINC—English sheet	ton	18/10/0 0/0/0
Vieille Montagne		19/0/0 0/0/0
TIN—Straits		64/0/0 64/10/0
Australian		65/0/0 65/10/0
English Ingots.		67/0/0 67/10/0
Banca		65/10/0 65/15/0
Billiton		65/0/0 65/5/0
OILS.		
Linseed	ton	20/17/0 21/2/6
Cocoanut, Cochin		24/0/0 0/0/0
Do. Ceylon		22/10/0 0/0/0
Palm, Lagos		22/0/0 0/0/0
Rapeseed, English pale		22/5/0 22/10/0
Do. brown		20/15/0 21/0/0
Cottonseed ref.		17/15/0 18/5/0
Oleine		20/10/0 21/10/0
Lubricating, U.S.		5/9/0 8/3/0
Do. black		4/6/0 6.6/0
TAR—Stockholm	barrel	19/6/0 0/0
Archangel		0/14/6 0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ABERDEEN.—Accepted for the erection of a shop, Methlick, for Mr. Grant. Mr. W. Clark, architect, Methlick, Aberdeen:—

Masonry.—Alexander Forbes, Ellon
Carpentry.—J. Gordon, Tillycairn, by Old Meldrum
Plumbing and Slating.—G. Ewen, Methlick
Plastering and Cementing.—J. & J. Hutcheon, Methlick
} £500

ABERDEEN — Accepted for the erection of a house and smithy, Badenscoth, Rothie Norman, for Mr. John Henderson. Mr. Wm. Clark, architect, Methlick:—

Masonry.—William Cruickshank, Easterton Logie, Pitcaple, Aberdeen
Joinery.—A. & W. Hendry, Wartle, Warthill, Aberdeen
Slating.—James P. Pini, Fyvie, Aberdeen
Plastering.—J. & J. Hutcheon, Methlick, Aberdeen
} Tenders exceeds £300.

BARNET.—For the supply of 500 tons of Leicestershire, or other granite, for the South Mimms Rural District Council. Mr. Greenway, Surveyor of Highways, Potters Bar:—

Croft Granite Company, Leicester..... 10s. 8d. per ton.

BERWICK-ON-TWEED.—For relaying a portion of Bridge-street with wood-paving, for the Sanitary Authority. Mr. Dickinson, Borough Surveyor, Berwick-on-Tweed:—

Armstrong, Addison, & Co., Sunderland £454 4 6

BRADFORD (Yorks.).—For the construction of brick-sewers and street-works, for Messrs. Dobson, Roper, & Hargreaves. Messrs. W. B. Woodhead & Son, surveyors, 18, Exchange, Bradford:—

Rhodes Bros.	£828 15 6	Hy. Wilson	£658 10 5
Jabez Williams	756 5 0	Matthew Hall	656 5 10
Joseph Robinson	692 19 4	Walter Barraud	625 17 10
E. Kellett	690 0 0	A. Naylor & Son,	
John Parker	684 9 2	Scholes, Cleckheaton*	624 0 0

* Accepted.

BRADFORD (Yorks.).—For the erection of two houses, Moor Park View, Killinghall-road, for Mr. William Firby, engineer, New-lane, Laisterdyke, Bradford. Mr. Fred. Holland, architect, 358, Wakefield-road, Bradford:—

Masonry.—Samuel Ross £480 0
Joinery.—James Schofield 210 10
Plumbing.—Joseph H. Martin..... 128 0
Plastering.—Andrew Taylor 74 0
Slating.—Hill & Nelson 33 5

[All of Bradford.]

BRICKET WOOD (Herts.).—For alterations and additions to Hansteads House. Messrs. Pridmore & Anderson, architects, High-street, Watford. Quantities by Mr. R. J. Stamp:—

Brightman	£1,430	Redhouse	£1,312
Neal	1,394	Lamble	1,289
Miskin	1,370	Wiggs	1,250
Boff Bros.	1,329	Davenport, London*	1,079

* Accepted.

BRIDGEND (Glam.).—For laying, &c., cast-iron water-pipes (1,680 yards). Llanharan, for the Rural District Council. Mr. Jesse Hurley, engineer, 10, Bridgend-road, Tondu:—

Gardner & Happerfield	£147 0 0	Rhys Jones, Bridgend*	£86 5 10
Barnes, Chaplin, & Co.	136 4 6		

* Accepted.

BRIGHTON.—For the supply of granite spalls, for the Town Council. Mr. F. J. C. May, C.E., Town Hall, Brighton:—

	Quantity offered. Tons.	Price per ton. s. d.
W. Hudson	2,000	9 11
		10 4
		10 5
Kneeshaw, Lupton, & Co.	2,000 to 3,000	8 6
J. Runnalls	—	9 3
Mountsorrel Granite Co.	2,500 to 5,000	13 0
		12 9
E. J. Van Praagh & Co.	10,000	15 0
Mowlem & Co.	—	10 2
R. J. & L. Fennings	4,000	10 6
W. Griffiths	—	10 8
J. Hamley	2,000	10 1
J. Sommerfeld	10,000	10 0
T. K. Freeman	2,000 to 4,000	12 10
Kent Road Maintenance Co., Gravesend*	10,000	9 8
A. & F. Manuelle, London*	4,000 to 5,000	9 9

* Accepted for 3,000 tons each.

BRISTOL.—Accepted for the execution of public street improvement works, for the St. George Urban District Council. Mr. T. L. Lewis, Surveyor, Parochial Offices, St. George, Bristol:—

John Williams, St. George, Bristol	£375	19	7	Section No. 1.
Thomas & Webb, ,, ,,	53	4	1	,, No. 2.
George Jones, ,, ,,	56	9	3	,, No. 3.
,, ,, ,,	209	8	1	,, No. 4.
John Williams, ,, ,,	32	5	5	,, No. 5.
F. Martin, ,, ,,	184	11	9	,, No. 6.

CARDIFF.—For forming, &c., Red Laver-street and others, for the Corporation. Mr. W. Harpur, C.E., Borough Engineer, Town Hall, Cardiff. Quantities by Borough Engineer:—

For Penhevad-lane, Paget-lane East, Paget-lane, Red Laver-lane East, and Clive-lane East.

James Rich	£368 16 4
Ellis & Davies, Cardiff*	365 18 1

For Penhevad-street and Red Laver-street.

Ellis & Davies	£946 6 10
James Rich, Cardiff*	934 8 3

For Church-terrace (carriage-way, footpaths, and sewer).

James Allan	£365 12 4
Ellis & Davies	339 17 5
James Rich, Cardiff*	282 9 6

[Allan's-lane not yet settled.]
*Accepted.

CARDIFF.—For rebuilding Wesley Chapel, Charles-street, Cardiff, for the Trustees. Messrs. J. P. Jones, Richards, & Budgen, architects, 18, St. Mary-street, Cardiff:—

Henry Force	£5,850	Shepton & Son	£5,155
D. J. Davies	5,800	E. R. Evans Bros.	5,049
D. Davies	5,615	E. Turner & Sons	4,850
James Allan	5,310	Henry Davies	4,790
W. Bowers & Co.	5,274	E. F. Richards & Co.	4,780
Henry Gibbon	5,200	Latley & Co., Barry*	4,765

* Accepted.

CHARLBURY (Oxon.).—For additions, &c., to Finstock and Fawler School. Mr. Geo. Castle, architect, Woodstock:—

D. Kitchin	£310	W. Barnes, Witney*	£290
Wastie Bros.	305		

* Accepted.

CHELMSFORD.—For the erection of shop, &c., Moulsham-street, for Mr. T. J. D. Cramphorn. Mr. F. Whitmore, architect, 17, Duke-street, Chelmsford:—

H. Kennell	£378	E. West	£315
Moss & Co.	360	F. Johnson, Chelmsford*	310

* Accepted.

CLAYTON-LE-MOORS.—Accepted for the execution of paving and sewering works, Mill-street, for the Urban District Council. Mr. A. Dodgeon, surveyor, Clayton-le-Moors:—

Abraham Broadley, Clayton-le-Moors.....£139 8 9

CROYDON.—For the erection of a pair of villa-residences at Wellington-road, Croydon, for Mr. F. Gothard. Mr. Robert M. Chart, architect and surveyor, Union Bank Chambers, Croydon:—

E. J. Burnand	£1,207	Hanscomb & Smith	£975
A. Bullock	1,094	Gunning	900

CULLOMPTON.—For the erection of farmhouse and premises on Whiteheathfield Barton, Cullompton, Devon, for Sir W. W. Karslake, Q.C. Messrs. E. Ellis & Son, surveyors, Exeter:—

E. Mudge	£1,750 0	Loudon & Son	£1,457 0
Stephens & Son	1,473 10	Nicks Bros.	1,230 0
W. Gibson	1,470 0	G. E. Saunders, Exeter*	1,217 10

[Surveyor's estimate, £1,148 5s.]
* Accepted.

DEVONPORT.—For alterations to No. 7, Fore-street, for the Devonport Conservative Club Company. Mr. Henry Geo. Luff, architect, 64, Chapel-street, Devonport:—

Greenslade & Son	£1,112 10	Smith & Son	£1,054 15
W. Littleton	1,061 18		

[All of Devonport.]

DONCASTER.—Accepted for the erection of six houses and shop, French-gate, for the Corporation of Doncaster. Mr. Crabtree, Borough Surveyor, 3, Priory-place, Doncaster:—

Mullins & Richardson, Shotton-street, Doncaster.....£935

DURHAM.—For the execution of sewerage works, Ludworth, for the Rural District Council. Mr. Geo. Gregson, surveyor, 38, Saddler-street, Durham:—

J. Manners	£150 18	J. C. Nicholson, Short-run (accepted)	£121 0
G. T. Manners	139 0	John Heslop	117 7

ENFIELD.—For pulling down, rebuilding, and fitting up the "George Inn" public-house, Market-place, Enfield Town, for Messrs. Savill Bros., Ltd. Mr. Fred. A. Ashton, architect, 3, Crooked-lane, E.C.:—

	Building.	Fittings.	Total.
J. & H. Cocks	£3,645	£880	£4,525
Hearle & Farrow	3,538	850	4,388
W. Shurmur	3,456	738	4,194
J. Bentley (accepted)	3,173	598	3,771
L. & W. H. Patman (late)	3,050	570	3,620

FYVIE (Aberdeenshire).—Accepted for the erection of a house, South Faddon Hills, Millbrex, for Mrs. Mitchell Farmer, Bruckle-seat. Fyvie. Mr. W. Clark, architect, Methlick, Aberdeen:—

Masonry.—William Thorn, Keithfield, Tarves
Carpentry.—James Gordon, Tillycairn by Old Meldrum
Slating.—James P. Pini, Fyvie
Plastering and Cementing.—J. & J. Hutcheon, Methlick
} £300

GOOLE.—Accepted for the erection of a house, Pollington. Mr. E. C. B. Tudor, C.E., Goole:—

E. Turner, Snaith.....£470

HALIFAX.—Accepted for additions to "Oddfellows' Hall," for the Society of Oddfellows, Manchester Unity. Messrs. Horsfall & Sons, architects, Lord-street Chambers, Halifax. Quantities by architects:—

Masonry.—Henry Jenkinson, Halifax	£810 0 0
Carpentry, &c.—Gaines & Sons, Halifax	398 0 0
Plumbing, &c.—Naylor & Son, Halifax	160 0 0
Plastering, &c.—T. Collins, Halifax	127 10 0
Lighting and Ventilating.—Donald & Lime, Glasgow	47 16 6
Tiling.—Doulton & Co., London	81 0 0
Painting.—Spencer & Son, Halifax	24 5 0
Ironfounding.—Hargreaves & Co., Halifax	44 17 0

HARWICH.—For the erection of schools, playgrounds, and closets, &c., on the Bathside, for the Harwich School Board, Essex. Mr. J. W. Start, architect, Colchester, Clacton-on-Sea, and Harwich. Quantities by the architect:—

	Schools.	Latrines and Drainage.	Boundary Walls	Tota
W. Chambers	£2,995	£560 0	£620 0	£4,175
Everett & Sons	2,975	575 0	620 0	4,170
E. West	2,900	545 0	620 0	4,065
F. Dupont	2,930	597 0	588 0	4,045
S. Parmenter	2,859	575 0	540 0	3,974
Smith, Beaumont, & Dawson, Harwich*	2,774	557 10	614 10	3 946

* Accepted for schools and latrines.

HASTINGS.—For the supply and delivery of 328 tons cast-iron pipes, &c., for the Corporation. Mr. P. H. Palmer, C.E., Town Hall, Hastings:—

	3, 4, and 6-in. Pipes. Per Ton.	9-in. Pipes. Per Ton.	Irregulars. Per Ton.
Staveley Coal & Iron Co.	£4 12 6	£4 5	£8 10

HEREFORD.—For the erection of three houses in Westfaling-street, on the Ryeland Estate. Mr. Ernest G. Davies, architect, 6, St. John-street, Hereford:—

Jos. Mason £570

IDLE (Yorks.).—Accepted for the erection of "Brooke's Memorial Vestry" at Holy Trinity Church. Messrs. J. Kendal and J. H. Bakes, architects, Calverley Chambers, Victoria-square, Leeds. Quantities by the architects:—

Coates Murgatroyd, Idle nr. Bradford £550

KIRTON-IN-LINDSEY (Lincs.).—For the erection of school buildings, for the School Board. Mr. Wm. Waugh, architect, Glentworth, Lincoln:—

J. Jeffery & Son	£696 0 0	Wm. Colley, Owston Ferry*	£617 19 8
Thos. Waugh	624 0 0		

* Accepted.

KNIGHTON (Radnorshire).—For taking down existing premises and erecting two semi-detached residences in Bridge-street, for Mr. Charles Langford. Mr. Ernest G. Davies, architect, St. John-street, Hereford:—

J. Hickman (at schedule of prices).

LEOMINSTER.—For the erection of school buildings, Burgess-street, and other alterations, for the Trustees of the Wesleyan Chapel. Mr. E. G. Davies, architect, 6, John-street, Hereford:—

J. J. Davies £348 14
J. Watkins, Leominster* 347 10

* Accepted, exclusive of painting, fittings, &c.

LEYTON (Essex).—For making-up, &c., several streets, for the Urban District Council. Mr. W. Dawson, C.E., Town Hall, Leyton:—

Adamant Stone Paving.

G. Wilson	£1,774	Adamant Stone Co.	£1,633
W. S. Wadey	1,752	W. Griffiths	1,617
J. Jackson	1,670	R. Ballard, Child's-hill, N.W.*	1,529
G. J. Anderson	1,658		

[Engineer's estimate, £1,692.]

Victoria Indurated Paving.

W. S. Wadey	£1,457	R. Ballard	£1,284
Victoria Stone Co.	1,332	J. Jackson, Grove House, Leyton*	£1,212
W. Griffiths	1,330		
G. J. Anderson	1,289		

[Engineer's estimate, £1,389.]

Roadmaking, Drainage, &c.

W. S. Wadey	£1,158	W. Griffiths	£1,009
G. Wilson	1,041	R. Ballard, Child's Hill, N.W.*	980
J. Jackson	1,023		

[Engineer's estimate, £1,244.]
Accepted.

LEEDS.—For the erection of warping sheds, Holly Park Mills, Calverley. Mr. E. Wright, architect, 13, Oxford-row, Leeds. Quantities by the architect:—

Masonry.—Alfred Hobson, Norman-lane, Eccleshill, near Bradford
Joinery.—Rhodes Bros., Shipley, near Leeds
Plumbing.—Edwd. Pearson, Farsley, near Leeds
Painting.—Albert W. Pratt, Calverley, near Leeds
Slating.—T. & A. Thornton, Norman-lane, Eccleshill, near Bradford
Plastering, &c.—Andrew Taylor, Norman-lane, Eccleshill, near Bradford
Ironfounding.—Joseph Cliff & Co., Leeds-road, Bradford
} £1,000

LONDON.—For the execution of street works, Margravine-road, &c., for the Fulham Vestry. Mr. Chas. Botterill, Surveyor, Town Hall, Walham Green, S.W.:—

	Gowan Avenue, Sec. II. Roadway.	York.	Imperial.	Victoria.	Adamant.
	£	£	£	£	£
Mowlem & Co.	628	452	383	426	405
Nowell & Robson	493	437	—	—	—
J. Mears	555	—	—	—	—
H. J. Greenham	515	—	—	—	—
G. Wimpey & Co.	470	442	354	—	321
J. Ball	516	—	—	—	—
Victoria Stone Co.	—	—	—	324	—
Imperial Stone Co.	—	—	315	—	—

	Margravine Rd., Sec. III. Roadway.	York.	Imperial.	Victoria.	Adamant.	Passage between North End-road and May-street.
	£	£	£	£	£	£ s. d.
Mowlem & Co.	332	158	136	151	143	—
Nowell & Robson	277	157	—	—	—	—
J. Mears	210	—	—	—	—	—
H. J. Greenham	269	—	—	—	—	—
G. Wimpey & Co.	254	147	117	—	107	155 0 0
J. Ball	294	—	—	—	—	—
Victoria Stone Co.	—	—	—	111	—	—
Imperial Stone Co.	—	—	110	—	—	—
Val de Travers	—	—	—	—	—	170 18 0
Trinidad Lake Co.	—	—	—	—	—	173 1 6
Limmer Asphalte Co.	—	—	—	—	—	170 18 0
French Asphalte Co.	—	—	—	—	—	157 14 0

LONDON.—For alterations and additions to business premises to and 82, Amhurst-road, Hackney, N.E. Mr. George Baines, architect, 4, Great Winchester-street, E.C.:—

Slow & Punter	£117 7 6	Castle & Son	£109 10 0
Battley, Sons, & Holmes	110 9 0	Barrett & Power, Hackney (accepted)	108 0 0

LONDON.—For alterations and additions, Christ Church National Schools, East Greenwich. Mr. Thomas Dinwiddy, architect:—

E. Mills	£459	J. H. Lyon	£435
W. Mills	450	W. Hayter (accepted)	395

LONDON.—Accepted for the erection of three villa residences in the Dartmouth Park Hill and Magdala-roads, at Highgate:—

Kerry & Holidge £865

LONDON.—For painting and repairs to be done at the Metropolitan Benefit Societies' Asylum, Bail's Pond-road, London, N. Mr. W. F. Potter, architect:—

G. Flaxman	£283 0	S. Hayworth & Sons, Kingsland (accepted)	£226 0
W. J. Galloway	271 10		
H. Dearsly	240 0	H. Coulson	225 0
Taylor & Son	237 0	F. Dawes	225 0

LONDON.—For repairs to be done at the Licensed Victuallers Asylum, Asylum-road, Old Kent-road, London, S.E. Mr. W. F. Potter, architect:—

F. Green	£448 0	F. Dawes	£319 0
C. Dearing & Son	393 0	J. Walker	280 0
H. H. Hollingsworth	387 0	R. J. Young, Barbican*	274 12
Small & Sons	350 0	R. J. Amos†	193 10
S. Hayworth & Sons	339 0		

* Accepted. † Withdrawn.

LONDON.—Accepted for erecting new bank buildings, shop and rooms over, and two dwelling-houses, at junction of High-street and Pilgrim's-lane, Hampstead, for Lloyds Bank, Limited. Mr. Horace Field, architect:—

H. G. Davenall, 49, Roderick-road, Gospel Oak £10,015

LONDON.—Accepted for the pulling down old and erection of six new houses and shops, Willow-walk and Highgate-road, Kentish Town. Mr. Zephaniah King, architect, 171, Victoria-street, Westminster:—

Chas. Morley Hazell £2,400

LONDON.—For the erection of a chimney-shaft, 150 ft. in height, for the Shoreditch Vestry. Messrs. Kincaid, Waller, & Manville, engineers, 29, Great George-street, Westminster, S.W.:—

W. Neil	£3,420	Manlove, Alliott, & Co., London and Nottingham (accepted)	£2,683
Yates & Co.	3,270		
Myles & Warner	3,167		

LONDON.—For additions to No. 141, Rye-lane, Peckham. Mr. J. R. Manning, architect. Quantities supplied:—

F. & F. H. Higgs	£929	J. O. Richardson	£802
Holliday & Greenwood	905	Battley (accepted)	782
Aldridge Bros.	815		

LONDON.—Accepted for pulling up old vaults at 11, Charing Cross-road, W.C., and erecting and completing new vaults, for Mr. E. J. Tulk. Mr. Robert Willey, architect. Quantities supplied by Mr. Alfred Howard:—

O. Richardson, Albert Works, Peckham £123

[No competition.]

LONDON.—For the erection and completion of premises at Nos. 9, 10, 11, and 12, Milk-street, Cheapside, for Mr. C. J. Knowles. Mr. Charles Watkins, architect. Quantities supplied by Mr. E. W. Fricker:—

Colls & Sons	£5,950	Downs	£5,555
Lascelles	5,946	J. O. Richardson	5,144
Munday & Son	5,819	Chessum & Son	5,140

LONDON.—For alterations and drainage works to be carried out at Portland Town Police-station, for the Receiver for the Metropolitan Police District. Mr. John Butler, architect. Quantities by Mr. W. H. Thurgood:—

Lawrence & Son	£2,225	J. O. Richardson	£2,160
Hart Bros.	2,215	Higgs & Hill	2,124
Perry & Co.	2,210	Lathey Bros.	2,114
Holloway Bros.	2,200	Gordon & Sons	2,023
Scrivener & Co.	2,190	J. H. Newman	1,997
Grover & Son	2,187		

LONDON.—For the erection of a new police-station at Willesden Green, for the Receiver for the Metropolitan Police District. Mr. John Butler, architect. Quantities by Mr. W. H. Thurgood :—

A. Kellett	£4,503 10	Scrivener & Co.	£4,027 0
Hart Bros.	4,109 0	Willmott & Sons	3,995 0
Holloway Bros.	4,090 0	Lathey Bros.	3,987 0
Lawrence & Sons	4,064 0	Higgs & Hill *	3,944 0
Perry & Co.	4,053 0	J. H. Newman	3,900 0
Grover & Son	4,037 0	* Accepted.	

LONDON.—For the erection and completion of an orphanage in the Hampstead-road. Mr. H. H. Bridgman, architect. Quantities by Mr. Goss :—

Higgs & Hill	£6,234	H. J. Williams	£5,687
Patman & Fotheringham	6,026	Gregar	5,487
B. E. Nightingale	5,993	Toms	5,449
Perry & Co.	5,899	Wall	5,391
Lawrance	5,850	Scrivener	5,338
Boyce	5,800	J. O. Richardson	5,315
Vernall, Danes, & Co.	5,797	Lamble	5,249
Simpson & Son	5,704		

LONDON.—For alterations and additions to the "Warrior" public-house, Loughborough Junction. Mr. W. Repp, architect. No quantities :—

Turtle & Appleton	£1,580 0	Maxwell Bros.	£1,027 0
J. O. Richardson	1,110 0	Drew & Cadman	988 10
Peacock Bros.	1,065 0	Powditch & Co.	930 0

LONDON.—For alterations and additions to the "Queen Victoria" public-house, Woolwich, for Mr. Ellis. Mr. J. O. Cook, architect. Quantities supplied by Mr. C. W. Brooks :—

Munday & Son	£1,240	Procter	£995
Kirk & Randall	1,203	J. O. Richardson	986
Holloway	1,098		

LONDON.—For alterations at No. 12, Pall Mall, S.W. Mr. E. Evans Cronk, architect. No quantities supplied :—

Killey & Gayford	£633	Hudson Bros.	£414
J. O. Richardson	614		

LONDON.—For the erection and completion of new premises at No. 135, Rye-lane, Peckham, S.E., for Mr. H. T. Holdron. Mr. Allan Stuart, architect. Quantities supplied by Mr. R. J. Stamp :—

Jarvis	£6,668	Wm. Smith	£5,987
Colls & Sons	6,638	Killey & Gayford	5,870
Holliday & Greenwood	6,333	J. O. Richardson	5,824
Edwards & Medway	6,114	Parker (accepted)	5,586

LONDON.—For building an additional story, &c., at Nos. 154 and 156, Drummond-street, for Messrs. Foxall & Co. :—

Veitch & Close	£498 0	J. Welbking & Sons *	£393 15
		* Accepted.	

LONDON.—For kerbing, &c., Engleheart-road, Catford, for the Lewisham Board of Works :—

J. Neave	£1,690 0 0	Fry Bros.	£789 0 0
W. Wadey	875 0 0	H. Woodham, 120, Blackheath Hill *.	771 0 0
J. Mowlem & Co.	829 0 0		
Tuff & Miskin	819 7 10	* Accepted.	

LONDON.—For erecting a temporary floor over the 1st class swimming-baths, at Tibberton-square, Upper-street, Islington, for the Commissioners of Baths and Wash-houses, for the Parish of St. Mary, Islington. Mr. A. Hessel Tiltman, architect, 6, John-street, Bedford-row, W.C. :—

McKenzie & Co.	£553 10	T. E. Mitchell	£254 0
T. Court	495 0	F. T. Chinchen	249 0
R. A. Yerbury & Sons	310 0	Thompson & Beveridge	240 0
Macfarlane Bros.	275 0	W. Laurence	225 0
A. H. Lascelles	265 0		

LONDON.—For painting and repairing works at the Public Baths and Washhouses, Hornsey-road, Islington, for the Commissioners of Baths and Washhouses for the parish of St. Mary, Islington. Mr. A. Hessell Tiltman, architect, 6, John-street, Bedford-row, W.C. :—

A. Dowse & Co.	£279	Wm. Wells	£210
F. T. Chinchen	247	Barrett & Power	163
Macfarlane Bros.	249	Thompson & Beveridge	133
Stevens Bros.	234		

LONDON.—Accepted for internal and external renovations and decorations at St. Michael's Church, Chester-square, London, S.W. :—
T. F. Williams, 30, Moreton-place, Pimlico £460

LONDON.—For decorative and sanitary renewals, lift, &c., 47, Nevern-square, South Kensington. Messrs. Morley & Letts, surveyors, 185, Earl's Court-road, S.W. :—

T. Heath	£320 0 0	Holdstock	£263 0 0
J. Rugg	290 7 6	J. Whitaker, Earl's Court-road *	254 10 0
H. Smith & Son	285 0 0		
		* Accepted.	

LONDON.—Accepted for decorations, &c., 29, Penymem-road, South Kensington. Messrs. Morley & Letts, surveyors, 185, Earl's Court-road :—
F. T. Williams, 30, Moreton-place, Pimlico £170

MIDDLESBROUGH.—Accepted for the execution of sewerage works, for the South Bank in Normanby Urban District Council. Mr. Harry T. Hopper, C.E., Surveyor, Town-hall, South Bank, Middlesbrough. Quantities taken off by the contractor :—
J. Howe & Co., Park-road, West Hartlepool £4,357
[Engineer's estimate for the work, £4,583.]

MITCHAM.—For the erection of a post-office at Mitcham. Mr. Robert M. Chart, architect and surveyor, Vestry Hall, Mitcham, Surrey :—

J. Burges	£1,395	E. J. Burnand	£1,325

MITCHAM.—For lowering floor of bar and erecting a porch, &c., at the "Royal Six Bells" public-house, High-street, Collier's Wood, Mitcham, for Messrs. Nalder & Collyer's Brewery Co., Ltd., Croydon. Mr. Robert M. Chart, architect and surveyor, Vestry Hall, Mitcham, Surrey :—

E. J. Burnand	£359	J. Burges	£330

MITCHAM.—For the erection of a pair of cottages at West Fields, Mitcham, for Messrs. Mizen Bros. Mr. Robert M. Chart, architect and surveyor, Vestry Hall, Mitcham, Surrey :—

J. Burges	£530 0	E. J. Burnand	£450 0
D. Stewart	480 0	M. A. Lawrence	389 10

RUABON.—For the erection of house and shop, Cefn. Messrs Davies & Moss, architects, 59, Hope-street, Wrexham. Quantities by the architects :—

J. T. Jones	£515	S. Moss, Coedpoeth, Wrexham (accepted)	£457
Hulse Bros.	500		

SELLACK (Herefordshire).—Accepted for the supply of a steel-rope suspension-bridge over the River Wye, for the Reverend. Augustin Ley and Bridge Committee. Mr. Ernest G. Davies, architect, St. John-street, Hereford :—
Exclusive of Fixing Bridge.
Louis Harper, Aberdeen £322
For Pier Abutments, Anchor Blocks, Foundations, and Masonry Work, to carry the Bridge.
John Preece, Marden £450

SIDCUP.—Accepted for new shop-front and fittings at No. 3, High-street, for Messrs. Kearley & Tonge, Limited :—
Buckeridge Bros., Kensington £243
[Two other tenders.]

STOKE-UPON-TRENT.—For the erection of school buildings at the Mount Penkhull for Deaf, Dumb, and Blind, for the United School Boards of this District. Messrs. R. Scrivener & Sons, architects, Howard-place, Hanley. Quantities by architects :—

Wm. Whitfield	£12,463 0	N. Bennett	£10,753 0
Wm. Cooke	11,233 0	J. Bagnall	10,596 0
H. P. Embrey	11,200 0	T. Godwin	10,200 0
C. Cornes	10,999 10	T. R. Yoxall, Stoke *	10,130 0
G. Ellis	10,989 0	* Accepted.	

STRATFORD.—For the erection of an isinglass works, for Messrs. E. Herring, Giles, & Co. Mr. J. Nixon Horsfield, architect, Kingston-upon-Thames :—

Holloway Bros.	£5,000	Killby & Gayford	£4,484
Brown, Son, & Blomfield	4,854	Johnson & Co.	4,478
Jarvis & Son	4,776	S. Scott	4,469
A. Wallis	4,693	Calnan & Co.	4,396
H. Hollingworth	4,690	W. Gladding, Whitechapel *	4,126
J. W. Falkner	4,537	* Accepted.	

WANSTEAD.—For the supply of 1,000 tons Guernsey granite or Quenast stone, for the Urban District Council :—

	Per ton. s.	d.	
G. G. Rutty	12	6	Guernsey.
A. F. Manuelle	12	6	"
R. & F. Fennings	12	7	"
Mowlem & Co.	12	3	"
Griffiths	11	5	"
C. M. Manuelle, Lime-street, E.C. *	11	6	Quenast.
* Accepted.			

WARRINGTON.—For the construction of a river wall, for the Corporation. Mr. Thomas Longdin, Borough Surveyor, Town Hall, Warrington :—

J. Ewart	£750 0 0	Sayce & Randall, Widnes * (accepted)	£704 18 8

WARRINGTON.—Accepted for the execution of street works, Barry-street, for the Corporation. Mr. Thos. Longdin, Borough Surveyor, Town Hall, Warrington :—
Thos. Stringer, 50, Fennell-street, Warrington ..... £78 16 3* £308 5 4† £252 13 2‡
* Passage behind Guardians' Office. † Barry-street.
‡ Street from Orford-lane to Hardy-street.

WELLINGTON (Salop).—For the erection of a police-station for the Standing Joint Committee. Mr. A. T. Davies, County Surveyor, Shire Hall, Shrewsbury :—

H. Gough	£2,545 0	Bradney & Lloyd	£2,515 0
H. Price	2,524 0	A. Roper, Wellington *	2,451 12
		* Accepted.	

WIMBLEDON.—Accepted for the erection of residence, "The Lentes," Wimbledon Park, for Mr. G. Nicol. Messrs. Hennell & Son, architects, 8 and 9, Essex-street, W.C. :—
Fraser £1,950

YARWELL (Northants).—For the erection of a "double-cottage," &c., for Mr. Grimley. Mr. Wm. Boyer, architect, 10A, Cowgate, Peterborough :—

S. F. Halliday	£525	Coates & Son, Thrapstone (accepted)	£470
Dickens	475		

Erection of Shops and Granary at Dulwich.—We are asked to state that the tender by Mr. A. Hood for this work, which we published in our issue of the 3rd inst., p. 93, was based upon altered and revised plans and specification, and was subsequently accepted.

TO CORRESPONDENTS.

A. K. (rather difficult to say, as setting is generally included. Say 1s. 2d. to 1s. 3d. per yard, if you mean two coats).—H. E. A. (the Secretary to the Local Government Board is the person to apply to).—R. P.—F. T. M. (below our limit).—S. W. C. (a letter of that kind should be signed with the writer's name).

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THE INDEX, with TITLE-PAGE, for Volume LXVIII. (Jan. to June, 1895) was given as a supplement with the number for July 13.

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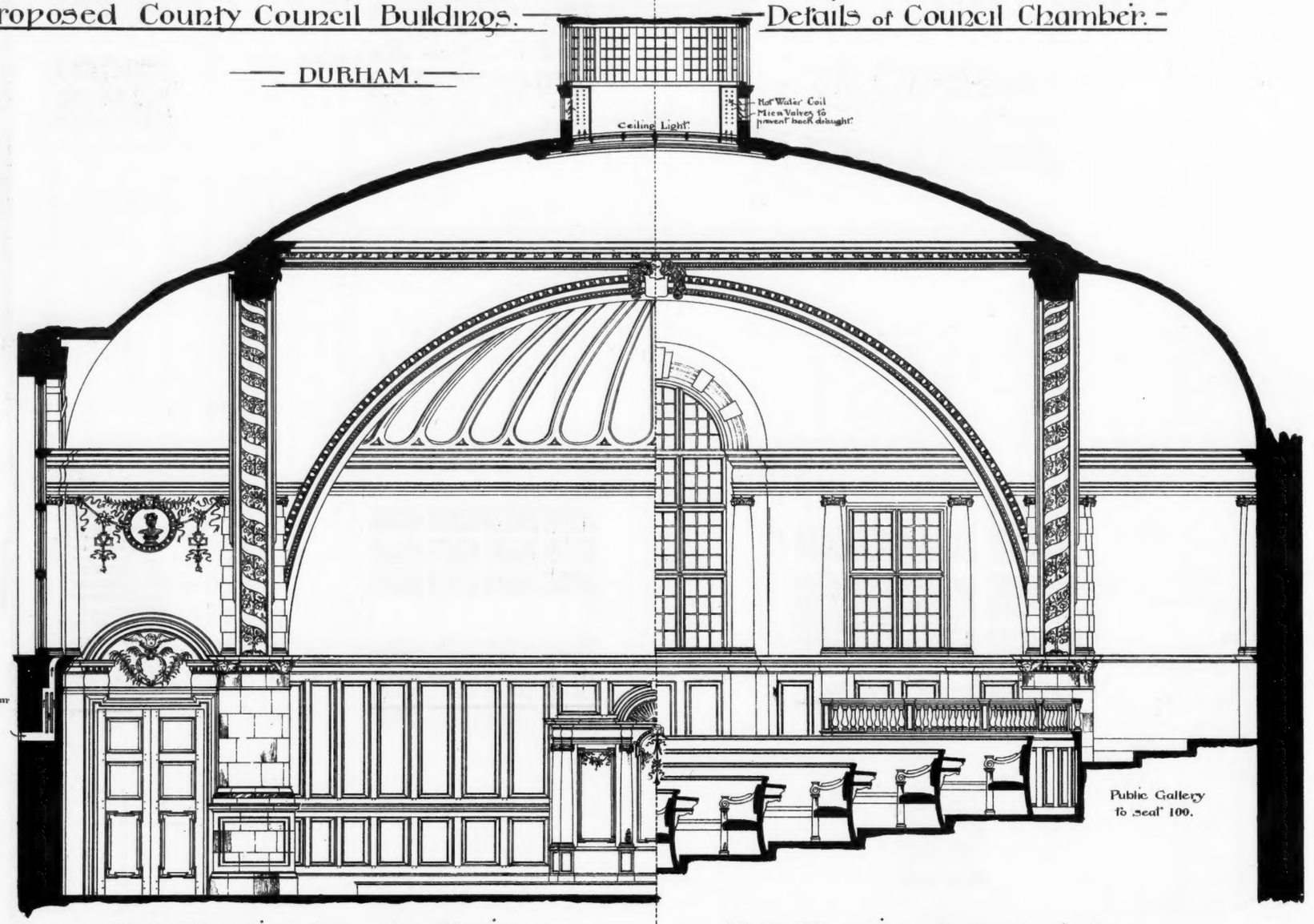
Proposed County Council Buildings.

DURHAM.

Details of Council Chamber.



Half Elevation towards Chairman.

Half Elevation towards Side.

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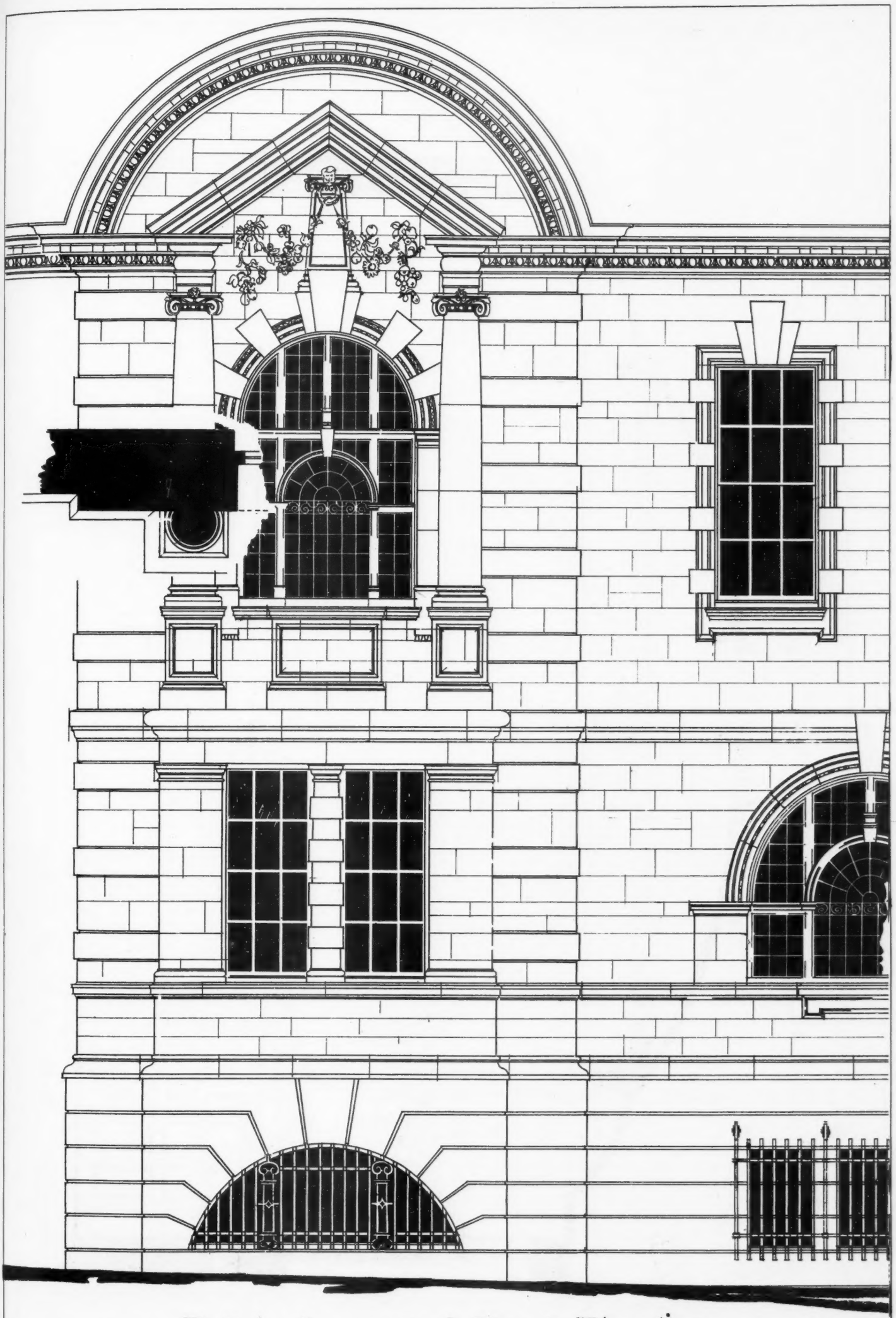

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